

This syllabus is provided as a general informational guide. Some of the information may vary depending on the specific course section and instructor. Different sections of the same course may require different textbooks. Verify the section specific textbook information in the CUNY's Academic Course Schedule Web Page. Modifications of the grading system presented here will be communicated by the instructors of the sections when they meet the class.

BOROUGH OF MANHATTAN COMMUNITY COLLEGE

The City University of New York

Department of Science

Title of Course: Concepts In Chemistry laboratory

Class Hours: 3

Course Code: CHE 109

Laboratory Hours per Week: 2

Semester:

Instructor Information

Credits: 3

Course Description: This is a one-semester course designed especially for liberal arts, business and other non-science oriented majors. Topics to be discussed include modern atomic theory and an introduction to the molecular basis of matter through the study of chemical principles and reactions and the relationship of this submicroscopic world to the daily life of students. This class includes a 1-hour lecture and a 2 hours lab session. The lecture hour will be an expansion of the lecture content covered in the co-requisite class CHE 108 that will provide information needed to carry out experiments in the 2 hours hands-on laboratory experience.

Basic Skills: MATH 051, ENG 088, ACR 094

Prerequisites: none

Co-requisites: CHE 108. (Students are required to take both CHE 108 and CHE 109)

| Course Student Learning Outcomes (Students will be able to...) | Measurements (means of assessment for student learning outcomes listed in first column) |
|--|---|
| 1. Students will be able to identify and apply the fundamental concepts and methods of the physical science of chemistry to the study of matter and its reactions. | 1. Assessments, laboratory experiments and writing a paper on current chemical topics in the news will all stress fundamental concepts |
| 2. Students will be able to apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation while studying the nature of matter and its reactions. | 2. Laboratory experiments will require the statement of a hypothesis, gathering of numerical measurement and objective observation followed by analysis and presentation of this data. |
| 3. Students will be able to use the scientific method to carry out collaborative laboratory investigations. | 3. Laboratory experiments will require students to consult on the gathering of numerical measurement and objective observation followed Laboratory by critical analysis and presentation of their data. |
| 4. Students will be able to gather, analyze and interpret data and present it in an effective written laboratory report. | 4. Laboratory experiments will require students to properly gather, analyze and interpret data and then to present it in an effective written laboratory report. |
| 5. Students will be able to identify and apply research ethics and unbiased assessment in gathering and reporting scientific data. | 5. Laboratory experiments will stress the honest and accurate reporting of all data to the proper number of significant figures. |

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Below are the college's general education learning outcomes, the outcomes that are checked in the left-hand column indicate goals that will be covered and assessed in this course. (Check at least one.)

| | General Education Learning Outcomes | Measurements (means of assessment for general education goals listed in first column) |
|-------------------------------------|--|--|
| <input checked="" type="checkbox"/> | Communication Skills- Students will be able to write, read, listen and speak critically and effectively. | Students will answer occasional insightful questions both during lecture and pre-lab as well as submit lab manual reports. |
| <input checked="" type="checkbox"/> | Quantitative Reasoning- Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems. | Students will solve problems requiring basic arithmetic and simple algebraic manipulation as well as to analyze experimental data. |
| <input checked="" type="checkbox"/> | Scientific Reasoning- Students will be able to apply the concepts and methods of the natural sciences. | Laboratory observations and writing a paper on current chemical topics in the news |
| <input type="checkbox"/> | Social and Behavioral Sciences- Students will be able to apply the concepts and methods of the social sciences. | |
| <input type="checkbox"/> | Arts & Humanities- Students will be able to develop knowledge and understanding of the arts and literature through critiques of works of art, music, theatre or literature. | |
| <input type="checkbox"/> | Information & Technology Literacy- Students will be able to collect, evaluate and interpret information and effectively use information technologies. | |
| <input type="checkbox"/> | Values- Students will be able to make informed choices based on an understanding of personal values, human diversity, multicultural awareness and social responsibility. | |

Textbook: **Required Text-** Chemistry for Changing Times, 15th Edition; John W. Hill, McCreary and Doris Kolb
Pearson Prentice Hall

eBook Access Card ISBN: 9780135797952

Book ISBN: 9780134878102

No Laboratory manual is required for fall 2020

Use of Technology: online simulations, virtual labs

Evaluation and Requirements of Students

- 1) Completion of all required laboratory experiments and submission of all required laboratory reports
- 2) Three quizzes: 30%
- 3) A term paper on chemical molecule of your choice – 10%

BMCC is committed to the health and well-being of all students. It is common for everyone to seek assistance at some point in their life, and there are free and confidential services on campus that can help.

Single Stop www.bmcc.cuny.edu/singlestop, room S230, 212-220-8195. If you are having problems with food or housing insecurity, finances, health insurance or anything else that might get in the way of your studies at BMCC, come by the Single Stop Office for advice and assistance. Assistance is also available through the Office of Student Affairs, S350, 212-220- 8130.

Counseling Center www.bmcc.cuny.edu/counseling, room S343, 212-220-8140. Counselors assist students in addressing psychological and adjustment issues (i.e., depression, anxiety, and relationships) and can help with stress, time management and more. Counselors are available for walk-in visits.

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Office of Compliance and Diversity www.bmcc.cuny.edu/aac, room S701, 212-220-1236. BMCC is committed to promoting a diverse and inclusive learning environment free of unlawful discrimination/harassment, including sexual harassment, where all students are treated fairly. For information about BMCC's policies and resources, or to request additional assistance in this area, please visit or call the office, or email olevy@bmcc.cuny.edu, or twade@bmcc.cuny.edu. If you need immediate assistance, please contact BMCC Public safety at 212-220-8080.

Office of Accessibility www.bmcc.cuny.edu/accessibility, room N360 (accessible entrance: 77 Harrison Street), 212-220-8180. This office collaborates with students who have documented disabilities, to coordinate support services, reasonable accommodations, and programs that enable equal access to education and college life. To request an accommodation due to a documented disability, please visit or call the office

BMCC Policy on Plagiarism and Academic Integrity Statement

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's Web site, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).

OUTLINES TOPICS- LABORATORY (TENTATIVE SCHEDULE)

| WEEK | EXPERIMENT |
|-------------|---|
| 1 | Taking measurements: Precision, Significant Figures and Density |
| 2 | States of Matter and Phase Changes |
| 3 | Chromatography |
| 4 | Build an Atom |
| 5 | Virtual Spectroscopy |
| 6 | Electron -dot structures |
| 7 | Shapes of molecules |
| 8 | Balancing Chemical Equations |
| 9 | Gases Laws |
| 10 | Molarity |
| 11 | Titration experiment |
| 12 | pH of different solutions |
| 13 | Energy changes |
| 14 | Radioactivity measurement |
| 15 | Boiling Points of organic Compounds |