Syllabus
General Chemistry I- CHM 2003
Baruch College Fall 2024

Meeting time:

Lecture BMW**L**	Vertical Campus B Vert 4-125	Dr. Jean Gaffney	Monday 9:05 -10:20 am Wednesday 9:05 - 10:20 am
Lab BMW**A**	Room 811	Dr. Olga Lavinda	Monday 10:45 am - 1:15 pm
Lab BMW**B**	Room A812	Ms. Ghena Abdul Satter	Monday 10:45 am - 1:15 pm
Lab BMW**C**	Room A825	Dr. Olga Lavinda	Wednesday 2:30 pm - 5:00 pm

Office hour: Dr. Gaffney VC- Room 5-125 Monday 1:30 – 2:30 pm or by appointment.

No zoom office hours will be held. This is Baruch policy for in-person classes. If you would like to meet with me by appointment, it can be Monday or Wednesday before 3 pm. Send me an email with a few times you can meet at least a day before.

Brightspace: This course will be managed using Brightspace. Please check Brightspace daily for updates and announcements.

Textbook: Cengage OwLV2 Online Learning Platform for Text Chemistry: An Atoms First Approach

ISBN: ISBN-13: 9780357639726 – Course key information posted on Brightspace

Text is mandatory.

** Homework and the textbook will be available through Cengage OwL2. The instructions for using and purchasing this and the course-key are on Brightspace. **

Class etiquette: There will be no phones or headphones permitted in the classroom or laboratory, even if they are off. Phones and headphones must be placed in your bag during classroom hours unless you have discussed an extenuating circumstance with me previously. Please do not talk to your classmates during class time. If you have a question, please ask me or your lab instructor. If you do not feel well, please stay home from class and let me know. I will help you make up the missed material. Also, if you have planned absences, please let me know ahead of time by email: jean.gaffney@baruch.cuny.edu.

Lab Manual: All labs will be free and available as pdfs on the Brightspace Page for your lab section. Labs must be printed prior to class.

Lecture Schedule: (The schedule is subject to change)

Review Chapter: Measurement and Calculations in Chemistry (8/28 – 9/4)
Units of measurement, uncertainty in measurement, significant figures in calculations, density, temperature, dimensional analysis – Reading R.1- R.7

OwL 2 Homework Assignment 1 Due 9/4

Chapter 1: Chemical Foundations (9/9 – 9/11)
Scientific method, fundamental chemical laws, Dalton's atomic theory, Early experiments to characterize the atom, Modern view of atomic structure- Reading (1.1 -1.6)

OwL 2 Homework Assignment 2 Due 9/11

Chapter 2: Atomic Structure and Periodicity (9/16-9/23)
The nature of matter, atomic spectrum of hydrogen, Bohr Model, Quantum Mechanical model of the atom, quantum numbers, history of the periodic table, Aufbau principle and the periodic table, periodic trends. Reading 2.2 – 2.12

Quiz 1- 9/16
OwL 2 Homework Assignment 3 Due 9/23

Chapter 3: Bonding: General Concepts (9/25-10/9)
Types of chemical bonds, electronegativity, ions, covalent bond, Lewis Dot Structures, Exceptions to the octet rule, resonance (3.1-3.9)

OwL 2 Homework Assignment 4 Due 10/9

Chapter 4: Molecular Structure and Orbitals (10/15- 10/21)
Molecular structure and orbitals, bond polarity and dipole moments, hybridization and the localized electron model, the molecular orbital model, bonding in homonuclear diatomic molecules, bonding in heteronuclear diatomic molecules. Reading- 4.1 – 4.7

Quiz 2- 10/21
OwL 2 Homework Assignment 5 Due 10/21

Chapter 5: Stoichiometry (10/23- 10/28)
Counting by weighing, atomic masses, learning to solve problems, the mole, molar mass, percent composition in compounds, chemical equations, balancing chemical equations, stoichiometric calculations, limiting reactant. Reading 5.1-5.11

OwL 2 Homework Assignment 6 Due 10/28

MIDTERM EXAM 10/30

Chapter 6: Types of Reactions and Solution Stoichiometry (11/4 – 11/11)

Types of chemical reactions, water , aqueous solutions, electrolytes, composition of solutions, types of chemical reactions, precipitation reactions, acid base reactions, oxidation reduction reactions, balancing oxidation reduction reactions. Reading 6.1-1.10

OwL 2 Homework Assignment 7 Due 11/11

Chapter 7: Chemical Energy 11/13 – 11/25
Chemical energy, enthalpy, calorimetry, Hess's Law, standard enthalpies of formation, covalent bond energies and chemical reactions, present sources of energy, new sources of energy. Reading 7.1- 7.8

Quiz 3- 11/25
OwL 2 Homework Assignment 8 Due 11/25

Chapter 8: Gases 12/2 – 12/4
Pressure, the gas laws, the ideal gas law, gas stoichiometry, partial pressures, kinetic molecular theory of gases, real gases, chemistry of the atmosphere.

OwL 2 Homework Assignment 9 Due 12/4

MIDTERM II – DECEMBER 9

FINAL EXAM – Scheduled by Baruch College. Final Exams are mandatory and cannot be offered on a different date. If you have more than 3 exams on the same day, you can organize one to be moved through the College. Please watch for dates and emails regarding this from the Provost's office.

Lab Schedule

Please note that there are two schedules below. One for Monday and a separate one for Wednesday lab sections. The lab manual is available from the Baruch College bookstore

Weekly Lab Schedule

Week	**Experiment**
1	Check-In (Safety, Lab Reports)
2	Measurements in Chemistry Lab, Math Review, Calculator Review (Brightspace PDF)
3	Density Lab (Brightspace PDF)
4	VSEPR Lab and Molecular Modeling using MolView (Bring computers) Balancing Chemical Equations (Brightspace PDF)
5	Unknown Liquids Lab (Brightspace PDF)
6	Titration of Vinegar (Brightspace PDF)
7	Chemical Magic (Brightspace PDF)
8	Determining the Percent Sodium Hypochlorite in Commercial Bleaching Solutions (Brightspace PDF)

9	Spectrophotometric Analysis of Cobalt II Ion solution (Brightspace PDF)
10	Dumas Lab (Brightspace PDF)
11	Enthalpy of Neutralization (Brightspace PDF)
12	How to write a scientific paper and give a scientific presentation- proper referencing, discussion of plagiarism
13	Presentation
14	Presentation and checkout

Lab Policy:

1. **Grading of Lab:**
   - Labs must be attended to receive credit. If you do not attend, you cannot write up a lab summary. There are no make-up labs.
   - 30 minutes will be given at the end of the lab period to write up your summaries of the lab. Summaries should include important definitions, the purpose of the lab and what your results were. You should relate the results to the purpose and discuss the results. Were they what you expected? How do they compare to literature values? Lab instructors will go over this in more detail.
   - The lowest lab grade or one missed lab will be dropped.
2. Please arrive on time as important information will be presented during the first few minutes of class. The lab room will be locked 5 minutes after the lab starts.
3. Please come to the lab prepared with your lab printed out. Read the lab before coming to lab and be prepared. Know what the glassware looks like and have an idea about safety precautions for the chemicals being used that day. Safety is extremely important in a chemistry lab. You will be working with hazardous materials, some of which can hurt you. Be alert and aware of what you are doing at all times. **Cell phones and laptops are not permitted at the lab bench and must be kept in your bag at the front of the room at all times.**
4. **Your lab grade will be reduced by 5 points** if you miss the checkout and fail to make alternate arrangements for checkout with your lab instructor.

For successful participation in this course:

- Students must have regular access to a computer and a reliable internet connection, and must have their Brightspace accounts set up. Brightspace will be used as a way for faculty to communicate with you throughout the semester. It is your responsibility to check Brightspace regularly for updates and announcements.
- Students must have access to their Baruch email, and knowledge of their username and password
- Students must use their Baruch email addresses for all course communications.

Learning objectives for CHM 2003:

- Learn how to apply mathematics to chemical and scientific problems.
- Gain an appreciation of how science is used in the modern world.
- Develop an understanding of the science of chemistry. Understand the shapes and structure of atoms and molecules, the Periodic Table, chemical nomenclature, chemical reactions, acids and bases, oxidation and reduction reactions, polymers, and nuclear chemistry.

Calculator: **A calculator is required for all exams**. TI-30X is adequate for this course and is available for approximately $10. You must know how to use your calculator. Calculators cannot be shared for quizzes or exams. They are available at the library if you do not want to purchase one.

GRADING:

3 quizzes, one will be dropped – 5%
2 midterms (no midterm scores will be dropped) –40% -The final can substitute for a lower scoring midterm. Final is cumulative.
9 homework assignments on Cengage OwL v2 (no homework scores will be dropped) – 20%
Lab score – 15%
Final exam - 20% (final is mandatory)

Numerical grades will be converted into letter grades per the university's guidelines.

Grade	Percentage Equivalent	Grade Point Equivalent
A	93.0 - 100	4.0
A-	90.0 - 92.9	3.7
B+	87.1 - 89.9	3.3
B	83.0 - 87.0	3.0
B-	80.0 - 82.9	2.7
C+	77.1 - 79.9	2.3
C	73.0 - 77.0	2.0
C-	70.0 - 72.9	1.7
D+	67.1 - 69.9	1.3
D	60.0 - 67.0	1.0
F	Below 60.0	0.0

https://www.baruch.cuny.edu/confluence/display/undergraduatebulletinfall18spring19/Letter+Grades+and+Grade+Point+Equivalents

- **F grades:** The Committee on Academic Standing has stated that students will receive the grade

they earn, and not an F at the request of the student. Doing otherwise would perpetrate fraud on the college and the government.

- **Exam format:** Exams will be **closed book** and **no notes (or index cards)**. A calculator is required. For each exam, you will have to send your scrap paper with your work. If I suspect cheating on the exam, you will be given a 0 on the assignment and I will send the case to the Dean of Students.

Attendance: See Baruch's official attendance policy.

Academic Honesty: Cheating and plagiarism are serious offenses. "Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work, to learn the rules and definitions that underlie the practice of academic integrity, and to uphold its ideals. Ignorance of the rules is not an acceptable excuse for disobeying them. Any student who attempts to compromise or devalue the academic process will be sanctioned."

> If you are found to have cheated on an assignment, quiz, or exam, you will be given a 0 for that assignment. The grade of 0 cannot be dropped. Your second-lowest test score will then be the one to be dropped, with the 0 counting towards your final grade. You will then be reported to Academic Integrity.

See the College's Academic Honesty website:
http://www.baruch.cuny.edu/academic/academic_honesty.html

Tutoring is available at the **Student Academic Consulting Center** (SACC) 55 Lexington Ave, Newman Vertical Campus (NVC) in 2-116, (646) 312-4830.

Pre-med/dental/veterinary school students should contact the Department of Natural Sciences **Recommendations Committee** (Co-chairs: Professors Keith Ramig keith.ramig@baruch.cuny.edu and Rebecca Spokony rebecca.spokony@baruch.cuny.edu) as soon as they know they are interested in eventually applying to these programs. Students are required to complete both the Pre-Health Workshop and the "Waiver of Confidentiality" form prior to soliciting letters of recommendation from your professors. Students in this course requesting letters must obtain an overall course grade of at least a B (83.0) or higher and have not committed violations of academic integrity.

The Writing Center provides one-to-one tutoring, workshops and eTutoring for this class helps students improve the quality of their lab reports.

The Office of Services for Students with Disabilities. Baruch has a continuing commitment to providing reasonable accommodations for students with disabilities. Like so many things this fall, the need for accommodations and the process for arranging them have been altered by COVID-19 and the safety protocols currently in place. Students with disabilities who may need some accommodation in order to

fully participate in this class should contact Student Disability Services as soon as possible at disability.services@baruch.cuny.edu

The Baruch College Counseling Center can assist you in addressing the **STRESS** and conflicts that may distract you from achieving your full academic potential and impede your ability to take and do well on exams and to submit competed work in a timely manner. The Center is staffed with experienced licensed psychologists, psychiatrists, clinical social workers, and supervised pre-doctoral graduate students, who work toward reducing the interference of everyday stress on goals and treating more serious conditions. The Center offers individual and group counseling and psychotherapy to the Baruch community. Services are confidential and free of charge. Call the Counseling Center at (646) 312-2155 or e-mail counseling@baruch.cuny.edu