GENERAL CHEMISTRY 1A, CHEM 1050, LECTURE – FALL 2023

LECTURE INSTRUCTOR CONTACT INFORMATION, CLASS AND OFFICE HOURS

Professor Maggie Ciszkowska
malgcisz@brooklyn.cuny.edu

Class Meetings: Tuesday and Thursday, 9:30 AM - 10:45 AM, room **Ingersoll Add 432 (432 IA)**
IMPORTANT: Please check this room number on CUNYFirst before your first class.

Office Hours: Thursday, 1:00 PM - 2:30 PM room **359 IA** or by appointment *(make your appointment by e-mail), any changes in office hours will be posted on Blackboard in Announcements*

LECTURE MATERIALS and SUPPORTING MATERIALS are available on BLACKBOARD:
CHEM 1050 FALL 2023 TR9 Ciszkowska

REQUIRED TEXTS:

- ***Chemistry 2e*, P. Flowers, OpenStax, 2019**

This text is available as a free PDF at https://openstax.org/details/books/chemistry (you can print chapters)
It is also available free for Kindle at http://www.amazon.com
You can order a hard copy through https://brooklyn.textbookx.com/adm/ or from http://www.amazon.com

REQUIRED ITEMS

- **Scientific calculator**: Texas Instrument TI-30X, TI30Xa or TI-30XIIS recommended

PRE-/CO-REQUISITE REQUIREMENT: Math 1006 or Math 1021, or placement into Mathematics 1011, 1012, 1026, 1201, 1206, or any Mathematics course numbered 2000 or higher.

LEARNING OBJECTIVES FOR CHEMISTRY 1050

Upon completion of this course, students should:

- Understand the basic physical principles underlying chemistry and be able to apply them both to qualitatively explaining phenomena and quantitatively predicting or interpreting outcomes.
- Understand and be able to explain fundamental ideas in the practice of science, including the nature of scientific evidence, the scientific method.
- Students should be able to apply principles of chemistry to understanding its role in other fields (e.g. biology), while understanding its underpinnings in physics and mathematics.

ONLINE SUPPLEMENTS AND INFORMATION:

http://www.brooklyn.cuny.edu/web/academics/schools/naturalsciences/undergraduate/chemistry.php (Chemistry Department Homepage)

http://www.brooklyn.cuny.edu/web/academics/centers/learning.php Brooklyn College Learning Center (free tutoring available)

CHEMISTRY DEPARTMENT COUNSELING

Department Chair	**Prof. Brian Gibney**	bgibney@brooklyn.cuny.edu
Chair's Student Office Hours: Thursday 3:30 – 4:30 PM (except Oct 12 & Nov 2), 359 IA		
Undergraduate Deputy Chair	**Prof. Maggie Ciszkowska**	malgcisz@brooklyn.cuny.edu
Undergraduate Advisor	**Prof. Andrzej Jarzecki**	jarzecki@brooklyn.cuny.edu
General Chemistry Coordinator	**Prof. Mark Kobrak**	mkobrak@brooklyn.cuny.edu

OTHER COUNSELING

Health Profession Counseling	**Benjamin N. Stewart**	benjamin.stewart@brooklyn.cuny.edu

GRADING:

Your final numerical grade will be calculated as follows:

40% Two lecture tests
30% Quizzes
30% Final Exam

Formula to calculate your final grade:
Final grade = 0.40*(average from two lecture tests) + 0.30*(average % from five quizzes) + 0.30*(Final exam)

Final grades are not curved, but are set according to the following scale:

95 or higher: **A+**	67-69.9: **C+**
83-94.9: **A**	58-66.9: **C**
85-82.9: **A–**	55-57.9: **C–**
82-84.9: **B+**	50-54.9: **D***
72-81.9: **B**	Less than 50: **F**
70-71.9: **B–**	

*__Note:__ If you earn a grade of D, that is the grade you will receive. Requests to change it to an F will not be honored.

EXTRA CREDIT: There are **Practice Tests** posted for each chapter; they are available on **Blackboard** in **Assignments** (see page 7 for details). *Students who complete **each practice test by a given deadline** with a grade of at **least 60%** will be awarded an **extra credit**.*

LECTURE TESTS (lecture room):

FIRST TEST:	**Tuesday, October 3, 9:30 AM– 10:45 AM**	**Ch. 1 and 2**
SECOND TEST:	**Tuesday, November 21, 9:30 AM– 10:45 AM**	**Ch. 3 and 4**

FINAL EXAM: **TBA**, covers **ALL chapters 1 – 5**

If students miss a midterm, an average of the other midterm and the final exam will replace the missing midterm grade. If students miss the final exam, they will receive a grade of INC for the course and will have the opportunity to make up the final exam after the start of the following academic year semester (Fall or Spring).

QUIZZES (9:30 AM – 10:00 AM, lecture room)
September 12 (Ch. 1)**, September 28** (Ch. 2)**, October 24** (Ch. 3)**, November 16** (Ch. 4)**, December 7** (Ch. 5)

HOMEWORK

Homework will be assigned from problems at the end of each chapter in the book and it is given in this syllabus. Although it is **not graded**, you are responsible for doing all the problems for quiz and exam preparation. If time permits some problems will be done in class.

IMPORTANT DATES:

August 31	Last day to add a course
September 4	College Closed
September 14	Last day to withdraw without a "W" grade
September 15-17	No Classes
September 25	No Classes
October 9	College Closed
October 10	CONVERSION DAY: Classes follow a Monday schedule
November 22	No Classes
November 23-24	College Closed
November 25-26	No Classes
December 11	Last day of classes, last day to withdraw from a course with a grade of "W"
December 12-13	Reading Day

Academic dishonesty is prohibited in the City University of New York.
The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for policy implementation can be found at http://www.brooklyn.edu/policies. If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member MUST report the violation. Students should be aware that faculty may use plagiarism detection software. Students caught cheating may be given a range of possible academic sanctions up to and including the assignment of a failing grade for the course. This is in addition to any possible disciplinary sanction assigned by the college administration.

Student Disability Services
The Center for Student Disability Services (CSDS) is committed to ensuring students with disabilities enjoy an equal opportunity to participate at Brooklyn College. In order to receive disability-related academic accommodations, students must first be registered with CSDS. Students who have a documented disability or suspect they may have a disability are invited to schedule an interview by calling (718) 951-5538 or emailing Josephine.Patterson@brooklyn.cuny.edu If you have already registered with CSDS, email Josephine.Patterson@brooklyn.cuny.edu or testingcsds@brooklyn.cuny.edu to ensure accommodation emails are sent to your professor.

Student Bereavement Policy
Students who experience the death of a loved one during the semester should consult the student bereavement policy here: https://www.brooklyn.edu/policies/bereavement/

Non-Attendance Due to Religious Beliefs
Students who are unable to attend class due to religious observations should consult the Brooklyn College Undergraduate Bulletin for the college's policy, and contact the lecturer to discuss the issue. Students must come forward with the issue in a timely manner.

Pass-Fail Option:
Details regarding taking courses on a pass/fail basis are given in the Brooklyn College bulletin. Students interested in this option should read the bulletin carefully, as they may not be eligible to do so; questions should be directed to the Registrar. Also note that the deadline to declare an intention to take a course Pass-Fail varies from semester to semester, but generally falls within the first two weeks of the course (contact the Registrar for the specific date). After this deadline, it is impossible to take the course Pass-Fail.

Useful Contact Information:
Chemistry Department:
http://www.brooklyn.cuny.edu/web/academics/schools/naturalsciences/undergraduate/chemistry.php
Pre-Health Professions Website:
https://www.brooklyn.cuny.edu/web/academics/special-programs/prehealth.php
Brooklyn College Learning Center (free tutoring available)
http://www.brooklyn.cuny.edu/web/academics/centers/learning.php

As an educator, I support the rights of undocumented students to an education. If you have any concerns in that regard, feel free to discuss them with me, and I will respect your wishes concerning confidentiality.
For resources and support, please visit Brooklyn College's Immigrant Student Support Office located at 17 Roosevelt Hall. You can also contact them via email at ISSO@brooklyn.cuny.edu or via phone at 718-951-5023.

CHEM 1050 ASSIGNED READING AND HOMEWORK PROBLEMS

See Lecture Schedule on p. 5 for recommended schedule and quizzes and lecture tests coverage
***TEXTBOOK: Chemistry 2e*, P. Flowers, OpenStax, 2019** *https://openstax.org/details/books/chemistry*

Below is the assigned reading and a corresponding set of homework problems. Your lecturer will give you guidance about where you are in the text and what to do to stay current with the reading. Read the material at least once before the lecture and spend some time on the in-chapter problems to reinforce it. Unless noted otherwise, problems listed as Homework correspond to the end-of-chapter problems for the corresponding chapter. Answers to red problems are at the end of the Chapter. **If you are instructed to memorize something, the test will be written assuming you have done so.**

Homework is assigned but **not graded.** Quiz and examination questions will mostly be like those given in class and in the text. **You should do as many of these as possible and do them multiple times.**

Topics	Assigned Reading and Problems
Math Review, Dimensional Analysis Basic concepts Chapter 1	Chapter 1: Problems 17, 18, 23, 25, 27, 29, 30, 32, 37, 38(a,d,e,f), 39, 40, 45, 47, 49, 51, 53, 71, 72, 77, 85, 87, 89, 97 + Supplementary Problems (Factor Label Method & Unit Conversion) Memorize: You must know the name and symbols of the first 36 elements of the periodic table, plus the following elements: Ag, Au, Pt, Hg, Sn, and I. You do not have to know their atomic numbers from memory (you will always have a periodic table), but you need to be able to write the symbol if given the name, and vice versa. Memorize: You must know the metric prefixes from nano- to Giga-, as given in Table 1.3. You need to know the prefix (nano-), the 1-letter abbreviation ("n"), and the power of 10 (10^{-9}). Memorize: You need to know the relationships between metric units and be able to convert between them (e.g. kg to g, or ^{o}C to K). You do not need to know English units or their conversions to metric, with the sole exception of temperature. You must be able to convert from ^{o}F to ^{o}C, and vice versa.
Elements, Compounds, Ions Periodic Table Chapter 2	Chapter 2, sections 2.1-2.6: Problems 1, 4, 8(a,b), 9(a,b), 10, 11, 17, 19, 23, , 27, 29, 31, 40, 41, 47,49. Chapter 2, section 2.7: 51, 53, 55, 57, 58, 59, 60 Memorize*: You will be given a table of ions. You should know the name, formula, and charge of each.*
Moles, Empirical Formulas, Molarity Chapter 3	Chapter 3, sections 3.1-3.2: 3, 5, 13, 16, 17, 20, 21, 25, 27, 29, 30, 33, 35, 37, 39 Chapter 3, section 3.3: 47, 49, 51, 53, 57, 59, 63, 65
Chemical Equations, Stoichiometry, Limiting Reagents Chapter 4	Chapter 4, sections 4.1 & 4.3-4.4: 3, 5, 42, 43, 44, 45, 47, 52, 55, 57, 61, 63, 65 Chapter 4, sections 4.2 & 4.5: 9, 11, 13, 14, 17, 19, 21,23, 25, 28, 29, 30, 33, 78, 79, 81, 83, 87, 89,91, 95 *A table of the Activity Series of Metals in Aqueous Solution will be given to you. This will be covered in lecture and you will be tested on this material.*
Thermochemistry Chapter 5	Chapter 5: Problems 3, 4(a), 5, 7, 8, 9, 11, 13, 14, 19, 21, 23, 25, 28, 29, 31, 33, 35, 45, 47, 49, 50, 55, 58, 59, 63, 69, 71, 73, 79, 83, 84, 85

CLASS SCHEDULE

***TEXTBOOK: Chemistry 2e*, P. Flowers, OpenStax, 2019** *https://openstax.org/details/books/chemistry*
IMPORTANT: There might be some CHANGES/MODIFICATIONS to this schedule – they will be announced.

UNIT	**Date**
Math Review, Dimensional Analysis, Basic Concepts Chapter 1	August 29, August 31, September 5, September 7
Quiz 1: Chapter 1	**September 12 (9:30 AM – 10:00 AM)**
Elements, Compounds, Ions, Periodic Table Chapter 2	September 12, September 14, September 19, September 21, September 26
Quiz 2: Chapter 2	**September 28 (9:30 AM – 10:00 AM)**
Review: Chapters 1 and 2	September 28
TEST 1: Chapters 1 and 2	**October 3 (9:30 AM – 10:45 AM)**
Moles, Empirical Formulas, Molarity Chapter 3	October 5, *no class October 10 (Mon classes)*, October 12, October 17, October 19
Quiz 3: Chapter 3	**October 24 (9:30 AM – 10:00 AM)**
Chemical Equations, Stoichiometry, Limiting Reagents Chapter 4	October 24, October 26, October 31, November 2, November 7, November 9, November 14
Quiz 4: Chapter 4	**November 16**
Review: Chapters 3 and 4	November 16
TEST 2: Chapters 3 and 4	**November 21 ((9:30 AM – 10:45 AM)**
Thermochemistry Chapter 5	*no classes Nov 23* November 28, December 30, December 5
Quiz 5: Chapter 5	**December 7**
Review: ALL Chapters	December 7, December 12 (Reading Day)
FINAL EXAM	**TBA**

MATERIALS AVAILABLE ON BLACKBOARD

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PRACTICE TESTS

There are **Practice Tests** posted for each chapter; they are available on **Blackboard** in **Assignments**.
You can take each test multiple times – your highest grade will be recorded in your gradebook.

*Students who complete **each practice test by a given deadline** with a grade of at **least 60%** will be awarded an **extra credit**.*

LECTURE NOTES (PDF FILES)

There are **Lecture Notes** posted for each chapter; they are available on **Blackboard** in **Course Documents/Lecture Notes**.

QUIZZES ANSWER KEYS

Quizzes answer keys will be posted after each quiz.

TESTS ANSWER KEYS

Lecture Tests answer keys will be posted after each lecture test.

ANSWERS TO HOMEWORK PROBLEMS

There are **Answers to Homework Problems** posted for each chapter; they are available on **Blackboard** in **Course Documents/Answers to Homework Problems**.

PRACTICE TESTS ANSWERS

There are **Answers to Practice Tests** posted for each chapter; are available on **Blackboard** in **Course Documents/Practice Tests Answers**.

ADDITIONAL MATERIALS

There will be **Additional Materials** posted for some chapters; they are available on **Blackboard** in **Course Documents/Additional Materials**.

TECHNICAL HELP

General Technical Support at Brooklyn College
In general, requests for technical support should be directed to Brooklyn College Information Technology Services (ITS) Help Desk:
Phone: 718.951.4357
E-mail: helpdesk@brooklyn.cuny.edu

Blackboard for Students: Support Site at Brooklyn College
https://libguides.brooklyn.cuny.edu/Blackboard_for_Students
NEED HELP WITH BLACKBOARD?
Students should review Blackboard FAQs below or contact Brooklyn College Students Support
Phone: (718) 951-4357 press 4 / E-mail: StudentBlackboard@brooklyn.cuny.edu

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Chemistry Careers In and Out of the Laboratory

A degree in chemistry opens doors to dozens of exciting and rewarding careers. Here are just a few possibilities.

- Get involved in product development, manufacturing, or quality control for companies producing anything from chemicals to pharmaceuticals to textiles.
- Go on to obtain a MS or PhD in chemistry, biochemistry, biotechnology, bioinformatics, pharmacology, or any other biomedical field, and take a leading role in medical research. Design and test new drugs and medical devices.
- Get involved in sales and marketing for chemical and pharmaceutical firms. Companies are always looking for people with a strong technical background to market their products, and will pay top dollar for them.
- Go into the field as an environmental chemist to study and protect the natural world.
- Use your skills in interesting and challenging ways, from evaluating risk for insurance firms to restoring artwork for museums.
- Work in law enforcement, in anything from forensic investigation to health and safety regulation. Or work inside the political process at a government agency to help formulate policy on scientific, medical and environmental issues.
- Pursue a career in patent law and help bring the next great scientific breakthrough to the market. Or work in the U.S. Patent and Trademark Office to ensure that inventors' rights are protected.

Salary Information

Chemistry Degree	Median Base Salary. NY region*
BA or BS	$85,000
MS	$97,867
PhD	$110,000

* From A. Widner, "What US chemists made in 2021, according to the ACS salary survey," *Chemical and Engineering News*, October 31, 2021

Salaries for chemists are high, but do not do justice to the excitement of the field. Science as it is practiced today is collaborative, and chemists have abundant opportunities to travel, to work with interesting people, and to present the results of their work in ways that have a profound influence on the world. Science will shape the world of the 21st century, and you have the chance to be part of that process.

Medical School, the Chemistry Major, and You

Fiction #1: Being a chemistry major will hurt my chances for medical school, because the hard courses may lead to a lower GPA.

Fact: Students majoring in mathematics and the physical sciences (this includes Chemistry) have among the highest medical school acceptance rate of any major:

Primary Undergraduate Major	Acceptance Rate
Mathematics and Physical Sciences (including Chemistry)	42.3%
Biology and Health Sciences	36.0%
Humanities and Social Sciences	37.2%
Other	33.5%

Based on data for the entering class of 2021, reported by the American Association of Medical Colleges

Table compiled from data available at https://www.aamc.org/

Fiction #2: Chemists have to take a lot of hard courses so they don't have time to do volunteer work, research, and other activities that help with medical school applications.

Fact: A student who has completed his or her requirements for medical school can obtain a chemistry degree with as few as five additional courses. This leaves plenty of time for other activities.

Fiction #3: If I don't get into medical school, I may be stuck working in a lab all day.

Fact: Chemists have enormous opportunities outside the lab. Chemical and pharmaceutical companies desperately need managers and salespeople with chemical knowledge, and will pay top dollar for them. Chemists also find work in finance, insurance, law, government and manufacturing. Go to the American Chemical Society website on Careers (https://www.acs.org/content/acs/en/careers.html) and use the "College to Career" link.

Some other advantages of being a chemistry major:

- Chemistry majors can receive credit for performing research work with a faculty mentor. This means the time you spend on research gets you closer to graduating and your research experience appears on your transcript.
- Chemistry majors get the skills they need to perform advanced laboratory work, so they can get better research positions, accomplish more and get stronger letters of recommendation from their mentors.
- Thanks to generous donations by alumni, the Department of Chemistry is able to give out more than $5,000 every year in fellowships, scholarships and awards. These are an aid to both the pocketbook and the resumé.