

CHEM-UA 125
General Chemistry I and Laboratory
Section 001 (Lecture)

Lecturer: **Dr. Malgorzata (Margaret) Mandziuk**
Office: **Silver 1001W**
Office hours: **Silver 1002 T 3 – 5 pm**
or by appointment

General Chemistry I learning objectives:

- To become familiar with the scope, methodology, and application of modern chemistry and to learn to appreciate its ability to explain the physical world.
- To understand that all matter consists of atoms, and that the limitless variety observed around us stems from the ways that these atoms bond with one another.
- To become adept at problem solving by learning to interpret data, to employ valid and efficient methods of analysis, and to assess whether or not the results of calculations are reasonable.
- To learn the principles of atomic and molecular theory, stoichiometry, and thermodynamics.
- To generalize the analytical and quantitative skills gained in this course and to apply them in more advanced courses and throughout ones career.

Registration:

To receive credit for this course, you must register for and attend three (3) sections. These sections are:

- the lecture section (sect. 001)
- a recitation section (numbers in one hundred range)
- a laboratory section (numbers in two hundred range)

The laboratory portion of the course is taught by Professor Rugg. He has a **separate syllabus for the laboratory component** and you should address your questions concerning the laboratory to him.

In the second week of the semester you must register for a **Peer Tutoring Experience (PTE)** section (see below). This will *not* be done through Albert. You will obtain the instruction on how to do it in class during the second week of classes.

Required Materials:

- **Textbook** - *Chemistry: The Molecular Nature of Matter and Change*, 7th Ed., by Martin S. Silberberg. The textbook is available in an electronic, loose-leaf, or hard-covered versions. Either one is fine. If you buy an older edition, you will have to photocopy sections with problem assignments (in order to work on correct homework problems).
- **i-Clicker 2** lecture response device – available in the NYU bookstore or on-line. You must register your i-clicker at <https://www1.iclicker.com/register-clicker> If you purchased a used device, you will be charged \$6.99 to register.
- **Scientific Calculator** – During exams and quizzes you may use only a simple scientific calculator. This calculator must have only one display window. (You cannot use a calculator that has an equation solver --- you must know how to manipulate algebraic equations.) TI 30 XA calculator is recommended. If you would like to use another type of calculator, show it to your recitation instructor to seek approval.
- **Molecular models** – A set of molecular models is *required*. The HGS “*Organic Chemistry Set for Student*” (by Maruzen) is highly recommended. The version sold at the NYU Bookstore is customized for this course. You will not need these models until we reach Chapter 10.

Lecture

We will meet twice a week – Tuesdays and Thursdays at 9:30 am for a duration of 1 hour and 15 minutes.

The lectures for this course are your primary source of chemical information, course requirements, and class announcements. The tentative schedule of lecture topics appears at the end of this syllabus. Any modifications to the schedule will be announced during lecture. I will deviate from the text occasionally and I may emphasize material differently than does the text. To do well in this course you must attend the lectures. The lectures will *not* provide you with *all* of the information that you'll need. The exams and quizzes are written under the assumption that you have attended lectures *and* read the textbook.

Please be considerate during lectures and refrain from talking (or snoring!). Cell phones must be turned off during the lecture. We will be using lecture response devices (Clickers) so that you can answer multiple-choice or quantitative questions that I will pose at various points in the lecture. You will be able to earn small number of extra credit points for the correct answers to these questions (percent of correct answers out of ten points). Clickers will also be used to monitor attendance of the lectures. After you miss five (5) lectures, I will begin to deduct one (1) point from your possible 400 points for the course for each additional unexcused absence from lecture. (Forgotten devices, arriving too late, etc., count as absences.)

I will make available to you my lecture slides as your lecture notes. In the notes there will be some blank spaces, which you should complete in class (numerical examples, etc.). In addition, the notes have lots of free space so that you can add additional information from the lecture.

Recitations

Recitations are intended to provide a small class environment where you can ask questions that require answers too extensive or too specific for the lecture setting. In other words, this is where you get *individual attention*. You can ask questions about lecture material or homework assignments. The instructors are chemistry professors (or graduate students). All of them are experienced chemists.

Recitations meet once per week for 1 hour and 15 minutes. Most of that time is yours to ask questions. The last 10-15 minutes are devoted to a weekly quiz that allows you, and us, to gauge how well you are doing in the course. If you do well on the quizzes, you will probably do well on the exams. If you do not do well on the quizzes, then you definitely need to get help **before** the exam!

Your recitation instructor will have weekly office hours. Make sure that you know where and when you can meet with her/him. This is your opportunity for true individual attention.

There will be **no transfers allowed after the drop/add period ends**. Taking a quiz in another section to replace a missed quiz or to avoid missing a quiz will require *written permission* from Dr. Mandziuk. *Unauthorized transfers or quizzes will result in no credit.*

Recitations will begin on Wednesday, Jan. 25. Recitations will end on Wednesday, May 3.

Peer Tutoring Experiences

The PTEs are another small class environment, though the emphasis is on students working together. The PTEs are run in conjunction with the CAS University Learning Center. The instructors are our best advanced undergraduates. It is intended that they act as moderators, while you and a few other students team up to work on problems. *This is one of the best ways to study chemistry.* It is called *cooperative learning*. Each PTE section meets ten (10) times per semester. Attendance will be taken at your PTE. You must attend and participate during **at least six (6) weekly meetings** in order to earn full PTE credit. You are encouraged to attend all ten meetings, and you might also want to get together with your PTE classmates outside of class to complete your homework and to study. Details concerning the sign-up process for the PTEs will be announced in class and through e-mail during the second week of classes.

Exams and Quizzes

There will be two midterm exams (Friday, March 4 and Friday, April 8) and the lecture final exam (Tuesday, May 17). (Professor Rugg will instruct you about the final exam for the laboratory part of the course.) Each exam will last for 1 hr and 40 min, although you should reserve a block of 2 hrs. Exams are cumulative. In chemistry, new concepts build up on the material covered previously. It is assumed that you master and remember the knowledge gained each week. If on the final exam your score will be higher than on any of the midterm exams, I will replace the lowest midterm exam score by the final score.

Quizzes will be administered nearly every week in your recitation classes. The exceptions will be the weeks following midterm exams. Instead of a quiz, during those weeks you will get back your exams and will be able to review the grading.

Each quiz will be given approximately 15 minutes before the end of a recitation class period. Your instructor has been told to restrict the quiz to **exactly 10 minutes** so that all sections have the same amount of time.

There will be **no make up** exam or quiz. One quiz with the lowest grade will be dropped from the calculation of your average. With a valid excuse your scores will be adjusted in order to compensate for your absence. If you miss more than four (4) quizzes you will be given a grade of incomplete (I).

If you miss the final exam, your grade will be counted with the score of ZERO for the final exam. If you provide an acceptable documentation and/or have an excusable reason for the absence, let me know as soon as possible. In this case, you will receive a grade of Incomplete (I). A missed exam or quizzes can be taken the next time the course runs (i.e., Summer or Fall 2017). My advice: if you really are ill when an exam date arrives, provide documentation and take the exam during the next semester.

Excused Absences:

- *Due to health problems –*
You must provide me (directly) verifiable documentation on a physician's stationery that specifically states that you were too ill to attend *on the date of a quiz or exam*. Otherwise, the missed work counts as a zero (0). *The doctors note MUST BE ATTACHED to a "documentation cover sheet"* (downloadable in PDF format from our course web page) *that shows exactly the date and what sort of work you missed (e.g., exam, quiz) as well as the section number of your recitation* (if that cover sheet is missing, the documentation *will not be used* and the absence will go unexcused). *All documentation is subject to verification. I will need to keep the documentation, so if you'll need it for another course, make a (good) copy for me.*
- *religious holidays or important family or career/University related events –*
Provide an explanation attached to a *"documentation cover sheet"*. Preferably, talk to me before the event and check whether or not your excuse will be honored.

Students with disabilities:

If you have a documented disability, you can arrange to take quizzes and/or exams at the *Moses Center for Students with Disabilities* (2nd Floor, 726 Broadway). It is your responsibility to make arrangements with that office and with me before the first quiz or exam.

Conduct

If you are caught cheating in this course, you will receive a grade of F and your actions will be reported to the Dean of your school. You can destroy your entire career in an attempt to score a few extra points.

Cheating includes carrying *any* unauthorized written material during a quiz or exam, storing *any* information in your calculator (which we'll check for), talking to *anyone* other than an instructor during a quiz or exam, copying work from another student (or allowing another student to copy from you), changing an answer on a quiz or exam after it has been graded, and anything else that would give you an unfair advantage over other members of the class. Bringing a classmate's Clicker to lecture to fake her/his attendance is cheating by both of you! If your cell phone rings during an exam, you lose 10 points (so ... *turn it off* before the exam!).

Homework Assignments

- The due dates of each homework assignments will depend on the speed of the material coverage and will be announced in class and posted on the website. You will have to solve twenty (20) assigned End-of-Chapter problems from the textbook after completion of each chapter. The problems must be solved **by hand** and your paper must be turned in to the instructor in your recitation class. The homework experience will help you during quizzes and exams, where you will be able to use only pencil and paper. A few problems will be selected from among the more difficult problems in the textbook and should challenge you and test your problem solving abilities. The homework will *not* be graded for accuracy. You will receive credit for a problem as long as you have shown a credible effort toward solving it. Problems that are not attempted, or answers for which no work or reasoning are shown (even if correct), earn no credit. The homework that you turn in must be legible, with problem numbers listed, with work leading to your answers shown, on stapled pages, with your name, section number, and your NYU ID number. Late homework will not be accepted. Medical excuses for missed recitations do not cover homework. If you miss a recitation, turn in your homework at the next meeting. Of course, it will be accepted at that later date *only* if you missed the previous recitation. All of the homework assignments will contribute to your final grade. (Neither of the homework assignment will be dropped.)

Grading

You will be graded according to a fixed point scale. There are no curves, there is no reason to compete with your colleagues, and you *might* all get A's, if the grades are high! The point values for the course components are:

LABORATORY	.....	100 points
QUIZZES	.....	60 points
HOMEWORK	.....	15 points
PTEs	.....	15 points
EXAM 1	.....	70 points
EXAM 2	.....	70 points
FINAL EXAM	.....	70 points
TOTAL		400 points
CLICKER ANSWERS	Extra credit	10 points

The grading scheme will be:

370-400	.....	A	265-284	.....	C+
350-369	.....	A-	240-264	.....	C
330-349	.....	B+	220-239	.....	C-
305-329	.....	B	200-219	.....	D
285-304	.....	B-	< 200	.....	F

You will need to earn a grade of C or better in order to be allowed to proceed to General Chemistry II & Laboratory.

Tentative Schedule of the Material Covered

DATE	DAY	CHAP.	TOPIC
Jan. 24	T		Introduction
Jan. 26	R	1	Study of Chemistry, Units, Conversion Factors
Jan. 31	T	1, 2	Significant Figures, Components of Matter;
Feb. 2	R	2	Nuclear Model of Atom, Atomic Weight
Feb. 7	T	2	Periodic Table, Compounds, Mixtures, Naming
Feb. 9	R	3	Mole, Molar Mass, Composition
Feb. 14	T	3	Stoichiometry, Limiting Reactant
Feb. 16	R	4	Major Classes of Chemical Reactions
Feb. 21	T	4	Major Classes of Chemical Reactions
Feb. 23	R	4	Solutions, Stoichiometry
Feb. 28	T	4	Solutions, Stoichiometry
March 2	R		Review
March 3	F	1-4	Exam 1 1:40 min. (2:00-4:00 P.M.)
March 7	T	6	Thermochemistry
March 9	R	6	Thermochemistry
March 21	T	7	Waves, Dual Nature of Waves and Matter
March 23	R	7	Waves, Dual Nature of Waves and Matter
March 28	T	7	Hydrogen atom: Energy, Orbitals
March 30	R	5	Gases
April 4	T	5	Gases
April 6	R		Review
April 7	F	5-7	Exam 2 1:40 min. (2:00-4:00 P.M.)
April 11	T	8	Chemical Periodicity
April 13	R	8, 9	Chemical Periodicity, Chemical Bonding
April 18	T	9, 10	Chemical Bonding, Shapes of Molecules
April 20	R	10	Shapes of Molecules
April 25	T	12	Intermolecular Forces
April 27	R	12	Liquids, Solids, Crystal Structure
May 2	T	12	Phase Transitions
May 4	R		Review
May 16	T		Final Lecture Exam (Chaps. 1-10, 12) 1:40 min. (12:00-1:50 P.M.)

***NOTE:** This syllabus is for the lecture/recitation portions of the course ONLY. You will receive a separate syllabus for the laboratory component at your first laboratory meeting.