# NEW YORK UNIVERSITY
Department of Chemistry

## CHEM-UA 125
Fall 2019 General Chemistry I & Laboratory

### Course Schedule and Outline

**Lecture:** Section 001  
**Time:** M, W 8:00-9:15 a.m.  
**Instructor:** Prof. John M. Halpin  
**Time:** M, T, W 2:00-3:30 p.m.  
**Room:** Skirball Ctr.  
**Office:** 1001O Silver

**DATE** | **DAY** | **CHAP.** | **TOPIC**  
---|---|---|---  
Sept. 4 | W | 1 | Keys to Studying Chemistry  
Sept. 9 | M | 1, 2 | Keys to Studying Chemistry; Components of Matter  
Sept. 11 | W | 2 | Components of Matter  
Sept. 16 | M | 2, 3 | Components of Matter; Stoichiometry  
Sept. 18 | W | 3 | Stoichiometry  
Sept. 23 | M | 3, 4 | Stoichiometry; Major Classes of Chemical Reactions  
Sept. 25 | W | 4 | Major Classes of Chemical Reactions  
Sept. 30 | M | 4, 6 | Major Classes of Chemical Reactions; Thermochemistry  
Oct. 2 | W | 6 | Thermochemistry  
Oct. 7 | M | 6, 7 | Thermochemistry; Quantum Theory  
Oct. 9 | W | 7 | Quantum Theory  
Oct. 14 | M |  | No class (Fall Break)  
Oct. 15 | T (=M) | 7 | Quantum Theory  
Oct. 16 | W | 7, 8 | Quantum Theory; Chemical Periodicity  
Oct. 18 | F |  | Exam 1 (Chaps. 1-4, 6-7) (2:10 P.M.)  
Oct. 21 | M | 8 | Chemical Periodicity  
Oct. 23 | W | 8 | Chemical Periodicity  
Oct. 28 | M | 9 | Chemical Bonding  
Oct. 30 | W | 9 | Chemical Bonding  
Nov. 4 | M | 9, 10 | Chemical Bonding; Shapes of Molecules  
Nov. 6 | W | 10 | Shapes of Molecules  
Nov. 11 | M | 10 | Shapes of Molecules  
Nov. 13 | W | 10 | Shapes of Molecules  
Nov. 15 | F |  | Exam 2 (Chaps. 7-10) (2:10 P.M.)  
Nov. 18 | M | 5 | Gases  
Nov. 20 | W | 5 | Gases  
Nov. 25 | M | 5 | Gases  
Nov. 27 | W |  | No class (Thanksgiving Break)  
Dec. 2 | M | 12 | Intermolecular Forces  
Dec. 4 | W | 12 | Intermolecular Forces  
Dec. 9 | M | 12 | Intermolecular Forces  
Dec. 11 | W | 12 | Intermolecular Forces  
Dec. 19 | Th |  | Final Exam (Chaps. 1-10, 12) (10:00 A.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.*
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 one's career.
Registration:

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

• the lecture section (sect. 001)
• a recitation section (sects. 101-123)
• a laboratory section (sects. 201-253)

None of these are optional!

The laboratory portion of the course is taught by Professor Geggier. She will have a separate syllabus for the laboratory component and you should address your questions concerning the laboratory to her.

Materials:

The required materials for the lecture portion of the course are:

• Textbook - Chemistry: The Molecular Nature of Matter and Change, 8th Ed., by Martin S. Silberberg*
• Lecture notes – available at the NYU Bookstore.
• iClicker lecture response device – available at the NYU Bookstore.
• Molecular models - A set of molecular models is required. The HGS “1013a” set (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.
• Scientific Calculator - Your calculator must be capable of evaluating logarithms, performing exponentiation, and calculating trigonometric functions. It must have at least an eight-digit display and you must be able to switch manually between scientific notation and decimal notation. Most standard scientific calculators have these features and they are priced as low as $13.

* The book for this course, Chemistry by Silberberg, will be delivered to you digitally. You should have received an email before classes began, giving you the link to access the material. The cost of the book is $94.75, which will be added as a “book charge” to your bursar bill, this is a savings of $174.75 over the new hardcopy price. You will retain digital access to the book for 5 years.

If you did not receive this email, simply go to https://www.follett.com/bwaccess/ to activate your account and access your bookshelf.

Should you choose to remove yourself from the program and find your course materials elsewhere. You must login (at https://includedcp.follett.com/2015) and opt out of having the course materials provided to you by September 17th.

Lectures:

The lectures for this course are your primary source of chemical information, course requirements, and class announcements. The schedule of lecture topics appears on the first page of this syllabus. I will do my best to follow the schedule; any modifications 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 lecture and read the text. In fact, the lectures will make more sense if you read the chapter before attending the corresponding lectures.

The lecture section is quite large. In spite of that, feel free to raise your hand to ask a question at any time. However, for more individual attention you should take advantage of your recitation and/or LG classes. 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 in class so that you can answer questions that I will pose at various points in the lecture. An “iClicker” is a little transmitter (about the size of a television remote control) that has a keypad that you will use to select multiple-choice answers. Everyone must obtain an iClicker and use it during lecture. Attendance of the lectures is required and will be monitored through the iClickers. 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. If you didn’t check-in with your device during a lecture, then you were not there (forgotten devices, arriving too late, dead batteries, etc., count as absences).

The large class size makes it necessary for me to use computer projection for all written and graphical materials. The basic lecture notes are prepared in advance. Since I will not be writing out the presentation by hand, it will be difficult for you to copy everything into your notebooks at the rate at which it will appear on the screen. Therefore, a shrunk down version of the lecture notes is available to you. You may purchase these notes at the NYU
Bookstore. The lecture notes have certain portions deleted (e.g., some example solutions) so that you will need to remain alert and do some writing. In addition, the notes have LOTS of margin space and a small “Notes” section every other page so that you can add additional information from the lecture (as I said, just the basic notes are prepared). I tend to say a LOT more than the lecture notes do, so there will be plenty of things for you to write down. The notes are not the complete lecture, nor are they a duplicate of the text. Reading the notes will certainly not replace attending the lecture. On the other hand, a combination of the notes (with your extra notes added) and the text will serve as an excellent study tool for the exams and quizzes (and MCATs, if they lie in your future).

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 experiencedchemists.

Recitations meet once per week for 1:15. Most of that time is yours to ask questions. The last 10 minutes are devoted to a weekly quiz that allows you, and us, to gauge how well you are doing in the course. Your instructor has been told to restrict the quiz to exactly 10 minutes so that all sections have the same amount of time (so don’t argue with them about it). Since the quiz is designed to last for only 10 minutes, it has a different format than the examinations. However, 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 Prof. Halpin. Unauthorized transfers or quizzes will result in no credit. Most of the recitation sections are already filled to capacity and these restrictions are necessary in order to preserve the “small class” format.

Recitations will begin on Friday, Sept. 6. Recitations will end on Friday, Dec. 13.

Learning Group Sessions:

The LGs (formerly called PTEs) are another small class environment, though the emphasis is on students working together. The LGs 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 LG section meets ten (10) times per semester. Attendance will be taken at your LG and you must attend and PARTICIPATE during at least six (6) weekly meetings in order to earn full LG credit. You are encouraged to attend all ten meetings, and you might also want to get together with your LG classmates outside of class to complete your homework and to study.

The LGs will begin on Monday, Sept. 16. LGs will not be held during the week of Fall Break (10/4 – 10/18), the week following exam 2 (11/18-11/22), nor during the week of Thanksgiving (11/25 - 11/29). The last LG week will be 12/9 - 12/13. Details concerning the sign-up process for the LGs will be distributed during the second week of classes.

On-line resources:

A web page for the lecture/recitation portion of this course is located at the URL:

http://www.nyu.edu/classes/inorg

The NYUClasses page for this class will be used by Prof. Geggier for the laboratory portion of the course – I will not be using NYUClasses for lecture issues. For laboratory information and documents, visit the NYUClasses page; for lecture information and documents, visit the web page specified above.

The web page contains the syllabus (i.e., this document), lists of recitation and LG times/locations, a list of auxiliary materials and internet links, the list of assigned problems from the textbook, numerical answers to those textbook problems, and, most importantly, a list of class announcements. In this last item, I will post administrative information about the course that you need to know, such as what is available on reserve at Bobst, optional review sessions, etc. I’ll keep it up to date and it will probably be a lot easier to access “the page” than to find me, so you really ought to use it. I will NOT be putting the lecture notes on the web page. This is NOT a “distance learning” course. If you want the notes, get them at the NYU Bookstore.
A note about e-mail: With a class the size of this one, I learned long ago that I cannot keep up with email. Therefore, I do not respond to email. To be clear – you are wasting your time sending me e-mail - I will not answer. I have 4.5 hours set aside to meet with you each week and I am willing to talk with individuals at the end of each lecture (in the lobby of Skirball). If you need something from me, see me in person.

Homework:

The homework assignments and their due dates will be sent to you as a PDF file and they are listed on the course web page. If we fall behind schedule in lecture then I will extend the due dates and show the new deadlines on the course web page. You must carry out the assignments and hand them in to your recitation instructor on the due dates in order to receive credit. The homework that you turn in must be legible, with problem numbers listed and in numerical order, with work leading to your answers shown, on stapled pages, with your name and your NYU ID number. The homework is worth only a few percentage points of your grade (5%). However, those points might make the difference between two letter grades. More importantly, if you don’t do the homework, you will not perform well on the quizzes and exams. No matter how well (you think) you understand the material, unless you can rapidly and correctly solve problems, you will not do well in this course. You must practice and gain the experience before the quizzes and exams. 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.

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.

Numerical answers to the homework problems will be posted on the course webpage shortly before the due date. This is so that you can determine if your answer is correct or not. If it is not correct, and you do not know how to correct it, ask about that problem in your next recitation class. Do not try to obtain copies of the complete solutions because, while they might make perfect sense once you see them, you will not gain anything from a problem unless you work it out yourself.

Missed Quizzes and Exams:

Everyone gets sick occasionally. I know that. Yet statistical evidence shows that students are especially susceptible to contagions just before an exam. Until medical research leads to a preventative for these pre-exam epidemics, I have a rule intended to motivate you to maintain your health. The rule is: unless you can produce verifiable documentation on a physician’s stationery that specifically states that you were too ill to attend on the day of a quiz or exam, the missed work counts as a zero (0). Long sad stories, notes from your mom, and even visible injuries are not sufficient. If you have always been the stoic type who never visits a doctor, I suggest you start to seek medical attention when you are ill. All lecture/recitation documentation must be given directly to Prof. Halpin. All documentation MUST include your name and the dates to which it applies as part of the physician’s entry. You MUST attach to that a “documentation cover sheet” (downloadable in PDF format from our course web page) that shows exactly what sort of work you missed (e.g., exam, quiz) and 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. If you miss a quiz or a midterm exam for medical reasons, you will not be given a make-up this semester, but I will adjust your other scores to compensate for your absence. This means that something else will count a little more for you. If you miss more than one midterm, or miss the final exam on December 19, and you provide acceptable documentation, your grade will be an incomplete (I). If you miss more than four (4) quizzes you will be given a grade of incomplete (I). Exams will not be given to individuals before or after the scheduled exam dates. A missed exam can be taken the next time the course runs (i.e., spring 2020). Yes, I am strict about this. But it’s the least that I can do to safeguard your health and help you to avoid those nasty pre-test illnesses! On the other hand, if you really are ill when an exam date arrives, I do urge you to provide documentation and take the exam during the next semester.

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. Cheating in this course has some of the characteristics of an arms race. Every once in a while, someone invents a new method to cheat and, shortly afterward, we develop a method to detect it.
However, unlike a real arms race (where destruction is mutual) only you can get hurt in this case. You can destroy your entire career in an attempt to score a few extra points. Think about that. It isn’t worth it.

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 iClicker 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!).

**Students with Disabilities:**

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

**Religious Holidays:**

If you have a religious obligation that prevents you from attending, I recognize your right to miss class. The procedure for a quiz or exam missed for religious reasons is similar to that for medical excuses, except that you can write the documentation. Please specify the date of the absence and the reason (i.e., what holiday). You must attach to it a “documentation cover sheet”.

**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** .......... 45 points
- **HOMEWORK** .......... 20 points
- **LGs** ........... 15 points
- (Fri., Oct. 18) **EXAM 1** ........ 70 points
- (Fri., Nov. 15) **EXAM 2** ........ 70 points
- (Thurs., Dec. 19) **FINAL EXAM** ........ 80 points

The grading scheme will be:

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<tr>
<th>Grade</th>
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<td>A</td>
<td>265-284</td>
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<td>A-</td>
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You will need to earn a grade of C or better in order to be allowed to proceed to General Chemistry II & Laboratory. I reserve the right to lower the cutoff numbers (making it easier), but I will not raise them. However, don’t count on them changing at all.