Syllabus, CH 101/103, General Chemistry, Spring 2017 http://people.bu.edu/keyes/ch101

1. STAFF: Office Hours on web page

Professor Thomas Keyes (SCI 513, 353-4730, keyes@bu.edu) is course Instructor and Lecturer.

Dr. Alexander Golger (SCI 270C, 353-2124, golger@bu.edu) is General Chemistry coordinator and handles all Drop/Add forms.

Mr. David Stelter (SCI 513, dstelter@bu.edu) will conduct the Discussions and participate in Lecture.

2. COURSE MATERIALS available at BU Bookstore or elsewhere

• *Chemical Principles*, by Atkins and Jones, 7'th Ed. (Freeman, 2016). We have ordered both the hard-cover and less expensive loose-leaf versions. The textbook is supported by web-based resources at

http://www.macmillanlearning.com/catalog/studentresources/chemicalprinciples7e

Here there are self-explanatory resources plus a "Fundamentals Diagnostic Quiz" to see how ready you are for basic chemistry. "Enrichment Resources" are explanations for some of the more advanced procedures and ChemCasts are videos demonstrating important techniques. "Solutions to Cumulative Examples" gives the detailed solution to a Cumulative Example problem from each chapter. It would be a good idea to take advantage of these materials.

- We use Sapling for online homework (Don't buy any other sapling product). Sapling is bundled with Atkins at the Bookstore You may buy the textbook in a bundle with the access code for Sapling or buy them separately (some students buy the textbook used and save money). When you purchase the access code through BU bookstore, you need to specify what you want (hardcover + sapling; loose-leaf +sapling; only sapling; e-textbook + sapling; etc.). You can also buy directly from http://saplinglearning.com which gives you the options of creating your account using a Facebook account and of buying a low cost e-textbook. If you use Facebook **do not** register under an alias. The student signup url is http://bit.do/studentinstructions
- TurningPoint Technologies ResponseCard RF LCD bundle. Only this clicker can be used in our course, for in-class polling and mini-quizzes. Register your clicker on Blackboard, http://learn.bu.edu. by clicking "Register clicker". It will ask for your Response Device ID; this is the 6-character string on the back side of the card below the bar code. If you replace your clicker, be sure to register the new clicker and email us with you new clicker number. The channel number is 41. To set the channel press "Ch" on the clicker, enter 41, and press "Ch" one more time. For any problems please contact TurningPoint at 1-866-746-3015 or support@turningtechnologies.com
- Study Guide for Chemical Principles, optional. Contains detailed solutions to all odd numbered problems and other aids to problem solving.
- Golger, *General Chemistry Laboratory Manual for CH101*, 2015 Ed., Hayden McNeil Publishing, ISBN 978-0-7380-7934-9.
- laboratory notebook, Hayden McNeil Publishing, ISBN 1-930882-23-8.
- approved safety goggles and laboratory coat.

- a scientific calculator.
- Sign up for Piazza for on-line discussions, https://piazza.com/bu/spring2017/ch101

On Sun mornings homework assignments will be given for the following week, and the agenda for the week will be posted on the course web page, http://people.bu.edu/keyes/ch101. Please read this page before asking about the agenda on Piazza. Homework is due the following Sat at 11:55 PM.

3. TOPICS. The text for this course is *Chemical Principles*, 7'th edition. We will begin with most of Fundamentals, which I hope is just a review. Then we aim to cover Focus: 1 (Atoms), 2 (Molecules), 3 (States of Matter, skipping most of Solids) and 4 (Thermodynamics, through 4E).

4. MEETINGS. Lectures are TR 5:00-6:15, COM 101. You will have the opportunity to give a 5-min talk on a current topic in Lecture, subject to us having enough Lecture time to finish the essential material. This will involve recruiting a second student to lead the discussion following your talk, or you can be co-presenters. Guidelines for giving a talk are on Piazza.

Discussions: B1 Thu 2:00-2:50 CAS B27; B2 Thu 6:30-7:20 SCI 115; B3 Fri 1:25-2:15 SCI 115; B4 Fri 12:20-1:10 SCI 115; B5 Fri 2:30-3:20 CAS B06B. Register for section "BX" while Dr. Golger is trying to find you a place. Discussions begin Thu 1/26.

There is one three-hour laboratory each week. Laboratory sessions are in SCI 268 on Wed at 2:30-5:15pm (Sec. L1, L2) and 5:30-8:15pm (Sec. L4, L5 and MET L5), on Thu at 8:00-10:45am (Sec. L6) and Fri at 2:30-5:15pm (Sec L3 and L7). Register for section "LX" while Dr. Golger is trying to find you a place. The first laboratory session is on Wed, Feb 3. There will also be a pre-lab lecture on Thu at 12:30-1:20pm in SCI 113. Each pre-lab lecture is about next week lab. The first, introductory pre-lab lecture is on Thu, Jan 26. See the Lab Syllabus for complete information.

There will be a weekly evening practice session, see "Office Hours" on web page.

5. EXAMS, QUIZZES, PROBLEMS AND GRADING. You will be graded based on two hour exams, a final exam, five or six quizzes, and homework problems. Exams will be given in lecture periods, quizzes during discussion periods. Your best four quizzes will count towards your grade. The exams will be given during the lecture periods on Th 2/23 and Tu 4/4. The exams will be designed as one-hour exams but you will be given an extra fifteen minutes to finish them. The exams will cover all material studied from the time of the previous exam. They will contain both problems and 'fill in the blanks' questions. Your grades will be available on Blackboard.

The Discussion quizzes will cover material studied from the time of the last exam or quiz. Upcoming quizzes will be announced in lecture and online.

The final, Fri 5/12 6:00-8:00 PM in HAR 105, will be comprehensive. Bring your calculator to the exams and quizzes!

In "all material studied from the time of the previous exam (or quiz)", "studied" means covered in lecture. We will progress through the book in a fairly straightforward fashion. At any time you should know where we are in the book. If you don't know, ask. An exam covers material up to the point we reached in lecture/book in the lecture before the exam.

The course material is the Lecture material. Discussion is driven by your questions. If a topic covered in lecture happens to not come up in discussion, don't assume it is not important. Conversely, if you spend a lot of time in Discussion on a topic but I just briefly touch on it, don't be surprised when it's not on the exam.

Homework problems will assigned and graded via Sapling. In addition to being part of your grade, you should do the homework to help yourself and because it will provide the basis of some of the discussion and discussion quizzes.

Your grade will be based on 900 points earned as follows: 2 exams, 200; final, 200; 4 quizzes, 100; homework problems, 100; lab, 300

The class median letter grade will be C+ or B-. The median numerical score will be CLOSE to the C+/B- border but it could be a little below or above, depending how the class performs. Your letter grade is determined by where your final numerical score out of 900 stands compared to the median. Students who have actively participated in Discussion or Lecture may be moved up if they fall just below a letter-grade boundary. Students who give a 5-minute talk in Lecture, or are a discussion leader, WILL be moved up one category.

A very easy clicker mini-quiz will be given in Tu Lecture. To get you thinking ahead it will be on what we aim to cover in the current week, as stated on the webpage. If you get a nonzero score on 75% of the quizzes AND make at least one TK AND one DS office hour visit, during the semester, to discuss science and not grades or procedures, 3 percent will be added to your final total score (x 1.03).

6. TESTING PROCEDURES. Exams and quizzes must be written in blue or black non erasable ink. Bring your calculator for exams and quizzes. Exams will be returned and discussed in the Discussion following the exam. If you think you have been graded incorrectly on an exam or quiz, write your arguments on it and give it to your Discussion TF in the session in which it is returned; **material will not be accepted for regrading afterwards**. The entire exam will be regraded. We look carefully for any evidence of a changed answer.

7. MISSED WORK. Make-up exams will be given only in extraordinary circumstances. If you have a legitimate reason for missing one (severe illness, family crisis, etc.) you must be prepared to present appropriate evidence. If it is acceptable, we will arrange a time for a make-up which is NOT guaranteed to be of the same difficulty as the original. If the final exam is missed, you will be given a grade based on a zero for the exam. The exam can then be made up at the end of the Fall 2017 semester when the exam will be given again. A new grade will be calculated and a grade change form will be made out. If you miss a quiz, that is simply your dropped quiz. You now know the day of the Final exam, Fri 5/12, so there is no excuse for making conflicting travel plans.

8. SUCCESS. Come to Lecture and take notes. Read your notes later. If you don't understand something, ask, in Lecture, Discussion, or on Piazza. If you miss a Lecture, get notes from a classmate. Lecture material is not available online.

This course will stress understanding. My goal is to teach you basic ideas that can be used to solve problems you have not seen before. You cannot succeed by memorizing or rote procedures. Most derived formulas and all physical constants will be given to you on the cover sheet of the exams. The best indicator of how you are doing is how easily you can do the problems. You should do all the assigned problems and as many additional problems as you can. Be sure you understand all the worked examples in the text. Try to solve problems with basic understanding and not by looking to plug numbers into a rote procedure. If you struggle with this course you should ask questions in discussion, come to g hours, email your questions to the staff, and ask them on Piazza. The surest way to fail is to struggle and not ask for help.

A lot of students get tutors. That's good, but remember that we understand the material better

than any tutor, and a tutor does not know what we emphasize and will put on the exams. If you are struggling it is a big mistake to spend a lot of time with a tutor and avoid Office Hours. The best tutoring is Office Hours, and it doesn't cost extra.

Chemistry is difficult. Unlike many subjects, chemistry problems have a single answer and if you can't get it, no amount of hand-waving will help. Most students will not be able to let things go until just before an exam.

9. OFFICE HOUR VISITS. While asking questions in office hours is one of the best ways to learn, many students do not take advantage of this opportunity. So, at least one visit to TK AND DS office hours, to talk about science and not grades or procedures, during the semester, is required the get the 3% mini-quiz bonus.

10. LAPTOP AND INTERNET USE IN CLASS: I don't make my slides available to encourage you to attend lecture. Thus, you are allowed to have laptops open to take notes. Our official policy is that you are not allowed to use the internet or phone during class for non-course purposes, which includes **texting and all social media**. There are no police to enforce this, but if you are obviously doing non-course things during lecture I will speak to you about it.

11. CHEATING. Unfortunately, cheating does occur. Since you are given the "formulas", making a 'cheat-sheet' of formulas will not help. If you are noticed looking at another student's exam, the two exams will be carefully compared. If they show any suspicious similarities, the matter may be brought to the Academic Conduct Committee. If the committee judges that you cheated, you will get a grade of zero for the exam or quiz in question with no possibility of make-up.