Syllabus Chemistry 11A, General Chemistry, Summer 2020

Contact Details
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Teaching Assistants
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Office Hours
M and Th 11am – 12pm

Lectures
M, T, Th, F : 8:30-11:00 am

TA Office Hours
Sunday – Thursday: 2-4pm, 7-9pm

Course Description
Chemistry 11A covers a wide array of topics, embracing aspects of descriptive and quantitative chemistry. No prior study of chemistry is assumed, as the course begins by looking at the atomic foundation of matter, the elements, and the organization of the periodic table, working its way up to an examination of how atoms are bonded together to form larger units of matter. Students who complete this course will have an understanding of the three major phases of matter—solids, liquids, and gases—and how they behave, as well as, knowledge of the major types of chemical reactions and how to represent them. A strong focus is put on learning methods of *creative problem-solving*—using the material as a way to develop creative approaches to solving unfamiliar problems—a skill that carries students far beyond the confines of the classroom.

*Success in this four-credit course is based on the assumption that students will spend **a minimum** of **20 hours of study time per week** in preparation for class (readings, problem sets).*

Learning Goals
Upon successful completion of this course, students will be able to

- make qualitative and quantitative predictions about the results of chemical reactions.
- predict chemical and physical properties of matter based on models of molecular structure.
- think both critically (analytically) and creatively about a variety of approaches to problem-solving.
- view problems as a maze to which there may be more than one equally effective, if not efficient, solution.
- decide between possible approaches to a problem and choose the most efficient.
- let go of their dependence on paradigms to solve problems and replace paradigmatic memorization with true analytical thinking.
- explain succinctly what “chemistry” is all about and why it matters to a person who has never studied the subject.

Textbook

Tro, Nivaldo J. *Chemistry, A Molecular Approach*. Pearson Education, Inc. 5th Edition, 2020

Note: You **must** purchase an access code for Modified Mastering Chemistry for your textbook. You can order a bundle for access to Modified Mastering Chemistry with the eText for text listed above. If you wish to, you may purchase a hardcopy of the textbook with access to Modified Mastering Chemistry for a significantly higher cost.

Readings

I expect students to read every chapter thoroughly, and to work through the sample problems in the text. Plan to read each chapter *before* the lectures on the chapter begin. The only way to keep up is to stay ahead!

LATTE

LATTE is our online course website. I will use it to post announcements, links to our lectures, problem sets and solutions, example quizzes and exams, and slides to help you review the material covered in lecture. You will also be able to use this site to view your quiz and exam grades. To access LATTE, go to http://latte.brandeis.edu and log in using your UNET ID and password.

Attendance

Attendance during all lectures **is a strongly recommended** as it is your chance to interact with your professor and fellow students. Lectures begin at 8:30 AM EDT on Zoom. Please be courteous to your fellow students during the lecture. Lectures will be recorded and added to LATTE as soon as they are available.

Lectures

For most students, lectures are essential to understanding "basic" chemistry at the college level. While the superficial facts do not deviate from the textbook or from what you might have learned in your high school chemistry class, this course is not about memorizing superficial facts. The connections between topics and deeper understanding that you will have to develop to be successful in CHEM 11A are not things most students can achieve on their own. Tests and quizzes will be based on lecture coverage, as well as on a thorough understanding of the textbook.

Suggested Textbook Problems

Problems are assigned to go along with each chapter of the book (see Suggested Textbook Problems on LATTE). Textbook problem sets will not be graded, but have been selected to help you learn the material effectively. Some of these problems will be worked on during lecture and others should be completed on your own before attempting the Mastering Chemistry problem sets.

Modified Mastering Chemistry Problem Sets

Online problems sets will be assigned on www.pearsonmastering.com. You will need to enroll in our class in order to access the problem sets. Our course ID is **meeks99786.** Please choose your login name to be "Your last name_Your first name" and use your Brandeis email as your login email. If I cannot recognize your login name and email, I cannot let you enroll in the class on Modified Mastering Chemistry. **You are responsible for checking the due dates of each assignment on pearsonmastering.com.** Please stay organized. Your first homework is due on June

2nd; this homework is designed to serve as an introduction to Mastering Chemistry. Please note that the assigned homework on the Modified Mastering Chemistry website are mandatory questions for credits and will contribute to your final grade. Late homework will not be accepted. I strongly recommend you to review lecture materials, and finish suggested textbook problems before you start. Homework for this category has a 90% mastery threshold. This means that if you score at or above 90% on the online homework at the end of the semester, you will receive a grade of 100% for this portion. Lower grades are scaled accordingly. This is to accommodate any technical issues, and possibly unforeseeable reasons (e.g., sickness)

Critical Dates

- **Quizzes:** *June 5th, 12th, 19th, 26th*
- **Exams:** *June 16th (Chapters 1-5), July 2nd (Chapters 6-11.7)*
- **Final Exam:** *As of now, there is no final exam*

Quizzes

The purpose of quizzes is to encourage you to stay on top of the material. Keeping up requires that you attend class, as well as do the readings and problem sets regularly (i.e. as the topic is being covered in class rather than right before the test). Quizzes will be given every **Friday.**

Exams

There will be two 90-minute exams evenly distributed throughout the semester. Exams are given at the start of class and will be monitored over Zoom. You must be present during the exam times.

Calculators

You must have a scientific calculator for exams and quizzes. Cell phone calculators or Internet calculators will not be permitted under *any* circumstances.

Make-ups

There are no make-ups for quizzes, no exceptions. Under certain restricted circumstances (below) an excused absence from a quiz or exam may be granted. Travel plans, family obligations, etc. are not valid excuses and will result in a zero on either.

Circumstances qualifying for an excused exam or quiz absence:

- *an incapacitating illness or injury in which the student is hospitalized, under medical care, or sufficiently debilitated as to be unable to perform basic academic tasks. [Colds, headaches, or other such mild complaints that result in your feeling less than 100% are not considered "incapacitating." It is your responsibility to get enough rest and take care of yourself in such a way as to enable you to meet all course requirements. To qualify for an excused absence, an illness must be severe enough to warrant absence from the assessment.]*
- *extraordinary circumstances over which the student has no control such as a death in the family.*

Requests for an excused absence from an assessment must be made *in writing* **before** the scheduled quiz or test if at all possible, and **in no event later than 24 hours after** the assessment has been administered. All requests must be accompanied by documentation supporting the reason for the absence. After the 24-hour deadline, a missed test or quiz will be considered unexcused and will earn a score of zero. **In the case of an excused absence from a quiz, the score that you earn on the**

corresponding part of the exam will count as your score for the missed quiz. Special accommodations will be made for missed exams due to a qualifying absence.

Students entitled to accommodations

Brandeis seeks to welcome and include all students. If you are a student who needs accommodations as outlined in an accommodations letter, please talk with me and present your letter of accommodation as soon as you can. I want to support you. In order to provide test accommodations, I need the letter more than 48 hours in advance. I want to provide your accommodations, but cannot do so retroactively. If you have questions about documenting a disability or requesting accommodations, please contact Student Accessibility Support (SAS) at 781.736.3470 or access@brandeis.edu.

Grade weighting

Class Element	Grade Percentage
Participation and problem- solving	20%
4 Quizzes	30%
2 Exams	50%

The average grade in CHEM 11A is generally around *B*-. A curve may be applied to an assessment. Any "curve" can only help, it cannot hurt, your grade. For example, if the average final score is 62%, that score will be set as the *B*- and all other grades will be adjusted around that average. On the other hand, if the class average is 82%, that does *not* mean that 82% is now equivalent to a *B*-. Rather, it means that the average grade earned in the class would be a *B*+.

Letter-Grade Equivalences

Percentage of Total (after weighted average is applied)	Grade Range
85-100 %	A^-—A^+
70-84 %	B^-—B^+
60-69 %	C^-—C^+
50-59 %	D^-—D^+
< 50 %	F

Academic Honesty

You are expected to be familiar with and to follow the University's policies on academic integrity (see http://www.brandeis.edu/studentlife/sdc/ai). Faculty will refer any suspected instances of alleged dishonesty to the Office of Student Development and Conduct. Instances of academic dishonesty may result in sanctions including but not limited to failure in the course, failure on the assignment in question, suspension from the University and/or educational programs.

Course Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
June	1 **Chapter 1** *Matter and Measurement*	2 **Chapter 2** *Atoms and Elements*	3	4 **Chapter 3** *Molecules, Compounds*	5 **QUIZ 1** **Chapter 3** *Molecules, Compounds*
	8 **Chapter 4** *Chemical Rxns and Chemical Quantities*	9 **Chapters 4/5** *Chemical Rxns and Chemical Quantities/ Solutions*	10	11 **Chapter 5** *Solutions*	12 **QUIZ 2** **Chapter 6** *Gases*
	15 **Chapter 6** *Gases*	16 **EXAM 1** **Chapter 7** *Thermo-chemistry*	17	18 **Chapter 7** *Thermo-chemistry*	19 **QUIZ 3** **Chapter 8** *Quantum-Mechanical Model*
	22 **Chapters 8/9** *Quantum-Mechanical Model/ Periodic Properties*	23 **Chapter 9** *Periodic Properties*	24	25 **Chapter 10** *Bonding I*	26 **QUIZ 4** **Chapter 10** *Bonding I*
June July	29 **Chapter 11** *Bonding II*	30 **Chapter 11** *Bonding II*	1	2 **EXAM 2**	3