

Chemistry 121.01: Introductory Chemistry

Course description

This course provides a thorough introduction to the fundamental concepts, theories, and methodologies of chemistry. Topics may include stoichiometry, theories of molecular structure and bonding, the periodic table, acid-base chemistry, chemical equilibria, and thermodynamics. This course provides a basis for further study of chemistry.

What to expect

From the course – to be amazed, challenged, and learn a lot about chemistry. Students can expect to improve their problem-solving skills, apply and extend their chemical knowledge to other areas of science, and enhance their written and oral communication skills. We will be spending 3-5 class periods on each topic and it is expected that you will have read the associated material **before** class and complete the on-line homework questions. In class we will work more challenging problems, analyze demonstrations, and discuss various applications of chemistry.

From the instructor – to treat each person with respect, be enthusiastic about the subject, arrive to class on time and prepared, return graded and assessed items in a timely manner, reply to emails in a timely manner (however, I will not reply after 9 PM), and be available outside of class for questions or further discussion.

Of the students – to respect others, be on time (when arriving to class, turning in assignments, etc.), be prepared for class (have read related course material **before** class, be alert, etc.), and participate during class (participate in small group activities, answer/ask questions, etc.).

Instructor and Course Resources

Instructor:	Prof. Kerry Rouhier (“Roo-yer”)
Email:	rouhierk@kenyon.edu
Office:	212 Tomisch Hall
Office Hours:	Monday (10 AM – 12 PM), Tuesday (12:30 PM – 1:30 PM), Thursday (3 PM – 4 PM), Friday (10 AM – 11 AM)
Class location:	Tomsich 101
Class time:	9:10-10:00 AM; M-W-F
Required materials:	Chemistry, 9 th Ed. by Raymond Chang (although any general chemistry textbook is acceptable); Sapling Learning Online Homework; basic scientific calculator (bring to every class)
Course websites:	<i>moodle.kenyon.edu</i> (CHEM 121.01) and <i>www.saplinglearning.com</i>
Lead tutor:	Johanna Klinmann (will be available at MSSC Sunday 7-8 PM and Thursday 9-10 PM)

Course Policies

Attendance – Your attendance at every lecture is expected. Excessive absences will lead to a lower grade and may lead to expulsion from the course. As stated in the *Course of Study 2014-2015* regarding absence due to illnesses:

“Absences for reasons of illness are not ordinarily excused: only when a student is declared by the College physician to be infirm (in a hospital or at home) will a health report be sent from the Health and Counseling Center to the dean of students, giving the days when each patient is judged infirm and recommending that the student's class absences be excused. When released from confinement, the student is expected to resume regular required attendances unless otherwise advised.”

Athletics and Extracurricular Activities – If your participation in athletics or extracurricular activities conflicts with a class, scheduled exam time or project due date, please let me know as soon as possible, at least two weeks in advance. Typically you will be expected to complete your work **before** (not after) the deadline for the rest of the class. Note: **only the Office of the Dean of Students offers an Excused Absence** (see *Course Catalog: Conduct of Courses* for details).

Accommodations – Students who anticipate a need for accommodations in this course because of the impact of a learning, physical, or psychological disability are encouraged to meet with me privately early in the semester to discuss their concerns. In addition, **students must contact Erin Salva, Director of Student Accessibility and Support Services** (740-427-5453 or salvae@kenyon.edu), as soon as possible, to verify their eligibility for reasonable academic accommodations. Early contact will help to avoid unnecessary inconvenience and delays. No accommodations of any kind will be given in this course without notification from the Coordinator of Disability Service at least one week prior to the special accommodations.

Academic Honesty – Kenyon College is, at the core, an intellectual community of scholars – students and faculty – engaged in the free and open exchange of ideas. Critical to this lively exchange and deep engagement with ideas is the academic integrity of our work, both inside and outside the classroom. At Kenyon we expect all students, at all times, to submit work that represents these standards of academic integrity. It is the responsibility of each student to learn and practice the proper ways of documenting and acknowledging those ideas and words you have drawn upon (see *Course Catalog: Academic Honesty and Questions of Plagiarism* for details). Ignorance and carelessness are not excuses for academic dishonesty. If you are uncertain about the expectations for academic honesty in this class, please ask for clarification. Note: this class encourages collaborative work; however your work must still be your own.

Course grade – your overall course grade will be based on your performance in the following areas:

In-class work/Participation	5%
Applied chemistry project	5%
Sapling homework	10%
Weekly quizzes	10%
Semester exams (3)	45%
Final exam	20%

Letter grades will be assigned no more strictly than the following scale:

A/A-: 90-100%; B(+/-): 80-89%; C(+/-): 70-79%; D(+/-): 60-69%; F: <59%

Late work – Late work will be accepted with a penalty of 10% per 24 hours late (including weekends). Work more than 5 days late will not be accepted.

Technology use – Please refrain from using laptops, tablet devices, cell phones, or any recording devices in class without prior approval from the instructor. All phones should be set to silent. Please bring a calculator to every class.

Course Details

In-class work – Throughout the semester the class will work through problems or discuss associated readings during class. Students will be asked to complete short assignments based on the problems or discussions generated in class. These assignments are designed to build conceptual understanding of the material covered in your reading, develop your problem-solving skills, and provide a platform for practicing communication of scientific topics. These assignments will count as a completion grade. Look for opportunities for EXTRA CREDIT throughout the semester.

Sapling on-line homework – As a supplement to the text, the instructor has asked that students purchase access to Sapling Learning (www.saplinglearning.com). This is an on-line homework system that provides immediate feedback for your homework assignments. There are two options to practice and test your learning: practice questions (not graded) and homework (graded). The practice questions give you a chance to work through difficult concepts with immediate feedback but without penalty for incorrect responses. You have unlimited chances to get the correct answer for the graded homework; however there is a 5% deduction for each incorrect answer. Graded on-line homework is to be completed **individually**. Deadlines are posted on the schedule.

Applied Chemistry Project – Much like the “Chemistry in Action” sections in your textbook, you and a partner will work together to investigate how a particular concept, environmental occurrence, synthetic process, everyday product, or recent news announcement relate to one of the concepts we have covered in class this semester. Your research will culminate in a short article suited for a general chemistry textbook. Deadlines are posted on the schedule.

Weekly Quizzes – In order to help you stay on top of the material, there will be weekly Monday quizzes. They will start promptly at 9:10 AM and last no more than 5 minutes. Quizzes will be closed-note and will cover material since the last quiz. There will be no makeup quizzes; however, your lowest quiz grade will be replaced by your highest at the end of the semester.

Semester exams – There will be **three** fifty-minute exams during the semester. If you have a scheduling conflict, please notify the instructor in writing at least two weeks prior to the scheduled exam to set up an alternate exam time. The exams are scheduled for **September 26th, October 24th, and November 21nd**. There will be no makeup exams.

Final exam – The final exam will be **Thursday, December 18th at 6:30 PM**. It will be cumulative for the semester and you will have two hours to complete the exam.

Best practices for success in CHEM 121 – Found on the Moodle page, is a section that includes several documents related to strategies for how to be successful in this course. There is also a link to an article on “Smart ways to study” that can be applied to all of your courses. It is encouraged that you look at these documents and put into practice these strategies **early** in the semester to maximize your success.

Tentative Schedule

Week	Monday	Wednesday	Friday
2 (9/1)	Basic Concepts and Stoichiometry (Chpt 2&3) Quiz #1		Reactions in Aqueous Solutions (Chpt 4)
3 (9/8)	Quiz #2 <i>Sapling 2-3 due</i>		
4 (9/15)	Quiz #3	Quantum Theory (Chpt 7) <i>Sapling 4 due</i>	
5 (9/22)	Quiz #4	<i>Sapling 7A due</i>	Mid-term Exam #1
6 (9/29)			Chemical Bonding I (Chpt 9)
7 (10/6)	Quiz #5 <i>Sapling 7B due</i>		No class – fall break
8 (10/13)	Quiz #6	Chemical Bonding II (Chpt 10)	<i>Sapling 9 due</i>
9 (10/20)	Quiz #7	<i>Sapling 10A due</i>	Mid-term Exam #2
10 (10/27)			Thermochemistry (Chpt 6)
11 (11/3)	Quiz #8 <i>Sapling 10B due</i>		Applied Chemistry Topic due
12 (11/10)	Equilibrium (Chpt 14) Quiz #9	<i>Sapling 6 due</i>	
13 (11/17)	Quiz #10	<i>Sapling 14A due</i>	Mid-term Exam #3
(11/24)	Thanksgiving break		
14 (12/1)	Acid-Base Chemistry (Chpt 15)	<i>Sapling 14B due</i>	Applied Chemistry Project due
15 (12/8)	Quiz #11		Final Exam Review <i>Sapling 15 due</i>
	Final exam Thursday (12/18), 6:30 PM		

Note: Check the Moodle site for the list of which sections will be covered within each chapter: “General Chemistry Concepts” and the “Guided Outlines” for each chapter.

Student Comments

Last year I asked my students to write a short letter to future students in the class, letting them know whatever they thought was most important about the instructor, the course, the assignments, and the readings (textbook and/or in-class papers). Below are their responses (unfiltered, unedited).

- Reading is big. We mostly do practice problems in class but some of it doesn't really prepare us for the conceptual part of the topic. I think practice is great, but reading about the topic and how it can be applied is just as effective. Also take notes while reading.
- It helps immensely to go through the text and work the example problems and end of chapter problems. This works best if you work through the chapter before the class covers much or any of it. Then keeping up with quizzes and notes is a breeze. Admittedly, keeping ahead like this is a commitment and is tough to do every chapter.
- Dear Incoming student, READ YOUR TEXT BOOK!!! You can't be successful in Chemistry without doing at least some of the reading. Also, practice the types of problems you expect to see on the test A LOT. That really helps you to stay on top of the things covered in class and helps you know what areas you need help with and when you need to go to office hours (professors love to see you in office hours!).
- Work in groups
- Dear Intro chem student, Practice problems are your best friend. Even though they won't be assigned as homework, I highly recommend you do them. Professor Rouhier is also a great resource and very helpful during office hours. It doesn't make sense to struggle through it by yourself when talking to her for 10 min will set you straight.
- I would say to really read the textbook. While Professor Rouhier explains the concepts in class and allows for good note taking, her explanations are not always complete or are complete but are not completely clear or direct. Doing practice problems from the text book and the sapling problems really help you to understand not just the information but also all of the different things you should know and be able to answer from the material given. Professor Rouhier has a lot of enthusiasm and is good during office hours but you need a lot of self teaching and problem solving skills to fully grasp what is expected of you from your understanding of the material.
- Do a lot of practice problems, that's how you get comfortable with the material in this class. Take good notes in class and go over your notes daily. Always look over your notes Sunday night for Monday morning quizzes. They are easy points if you know the material.
- Read the textbook in tandem with attending lectures. Make use of in-class time to speak to the professor.
- Prof. Rouhier is a lovely person but slightly crazy in class. She teaches each topic well only to surprise you on the test with overly hard questions
- Make sure you start studying for exams sooner than the day before the exam. The practice questions on sapling are very helpful.
- Rouhier is very good about incorporating students into the lecture and encouraging collaboration.
- Practice makes perfect, and helps to ground the concepts in your head. Along with the questions after each chapter in the textbook, there are also lots of good sources on the internet that give you quiz questions you can practice with.
- be very organized and stay on top of the material.
- Dear Future Chemistry 121 Students, GO TO OFFICE HOURS IF YOU ARE EVER CONFUSED!! THE MSSC IS A WONDERFUL PLACE!! AND COLLABORATE WITH FRIENDS ON HOMEWORK--YOUR OWN UNDERSTANDING OF THE MATERIAL IMPROVES FROM HELPING OTHERS!! Good luck, may the odds be ever in your favor.

- In class we often go over the more abstract and theoretical aspects and don't do a lot of problems. Therefore, the Sapling homework and problem sets are often very different from what we have gone over in class so don't rely on class notes to do the homework. The textbook readings are helpful, and clarify what we learn in class.
- Don't be intimidated by Prof. Rouhier. She is very enthusiastic and eager to help out her students. However, I would strongly recommend creating a special planner to keep track of her assignments, since they are spread out across Moodle, Sapling, the syllabus, and in-class announcements.
- If you take good notes you will probably do well. Prof Rouhier is great with helping you if you step forward and say that you are struggling. USE OFFICE HOURS.
- I think that reading the book will help a lot with learning the new material that is presented in this course.
- I think the most important thing to do well in this class is to look over notes every day and start studying early!
- Rouhier can get sidetracked and be a little scattered. The material of the course is interesting. The assignments are not too difficult but the weekly quizzes can be killer. The textbook readings can be dry but they are informative.
- I think the most important aspect of this class is to utilize the Sapling assignments. They are a very useful tool in preparing for the tests and quizzes. Also, be sure to ask questions in class!
- Fun and challenging. Don't go into the course expecting to just passively understand concepts, but the professor will do her best to help you understand and make it interesting. Overall a really great course and really sparked my interest in chemistry in a way that high school chemistry never did.
- To the future students, The important thing to bear in mind for this course is that if you do your work, you will do fine. The class is a very reasonable one, with a good balance of homework, finals, and in-class work. I recommend it, particularly with Professor Rouhier - she's awesome, really energetic, and really wants to help you learn.
- Read the textbook because class will not help you learn the material very well.
- I started out with a negative opinion of the class; I honestly did not think Professor Rouhier explained the expectations in terms of knowledge very well at all. I didn't fully understand how to pick out the important information from class until I had already failed my fair share of the in-class quizzes; however once you figure out how to do well in the class things start to pick up and become much more enjoyable. I still think the beginning was more than a little bumpy in terms of communication, but overall I ended up really enjoying the course.
- Dear Future Students of Introductory Chemistry, I think it is most important to remember to participate in the classes. It can be tempting, especially in the morning, to copy down notes and let the teacher do most of the talking. However, you will remember more and understand better if you actively answer questions and think about what is happening in class. It is also helpful, whenever possible, to do the Sapling practice problems before you do the homework, because the same concepts will appear in both.
- To future chemistry students: In order to be successful in this class, you have to consistently put in time outside of class. If you review your notes after each class, the material will stay fresh in your mind, and quizzes will be straightforward. There is not too much homework, but you should start it early in case you run into problems. Don't be afraid to ask questions, either in class or office hours, because Professor Rouhier will be happy to help you understand. Although I found it difficult to do the textbook reading before new material was presented in class, it is a good idea to read it at some point to solidify your understanding.
- Dear Future Students, I would focus on reading the book; sometimes concepts discussed in class can be very confusing and the text book can help. I would also do all the extra practice you can do.