

# General Chemistry 1

## CHEM1010 Fall 2021 | COURSE SYLLABUS

### RECITATION HOURS

Monday, Wednesday & Friday  
CHEM1010-01 8:00-9:05am  
CHEM1010-02 9:15-10:20am  
CHEM1010-05 10:30-11:35am

All sections will meet at the  
David Straz Center room 153

### CONTACT INFO

Office in DSC 261  
Mailbox in DSC 167  
EMAIL:

[olstadt@carthage.edu](mailto:olstadt@carthage.edu)



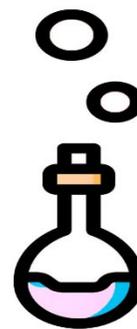
### DR. OLIVIA ALTSTADT, PH.D.

I will be your General Chemistry professor this semester. I have a Ph.D. from Purdue University in Chemistry, specialized in Biochemistry.

I hope you will find these topics as interesting as I do. Chemistry is amazing and it will enlighten your future professional careers, how you shop for groceries and many other practical things.

### COURSE DESCRIPTION

Chemistry 1010 and 1020 provide a full-year introduction to college-level chemistry. During the first semester course (Chemistry 1010, General Chemistry I), topics to be discussed include the structure of the atom, reaction stoichiometry, concentration, atomic and molecular structure, orbitals, the properties of gases, and the energy changes accompanying chemical reactions.



### OFFICE HOURS

The times listed above we have set aside to specifically be online to help you. Alternatively, you can set up an appointment. Please feel free to contact either of us by email to set up an appointment.

Tuesday 8:00-9:00 am  
Wednesday 7:00-8:00 pm  
Thursday 7:00-8:00 pm

ZOOM: Meeting ID: 942 1658 1110 Passcode: 052867

<https://carthage-edu.zoom.us/j/94216581110?pwd=d1lVem5PZ3RwaUVwQmFtVVFwQW5LZz09>

### MASK AND COVID POLICY

Due to the ongoing pandemic, Carthage College has adopted a policy requiring masks to be worn by all individuals in all buildings. Masks must be worn at all times in the classroom, laboratory, studio spaces, hallways, bathrooms, and during in-person meetings. The face covering must conform to CDC guidelines and must cover both the nose and mouth at all times. Note that bandanas, neck gaiters, and masks with exhalation or external valves are not acceptable and are not sufficient for protection of others or yourself. Acceptable masks tie behind the head or loop behind the ears, fit snugly over the nose and chin, and can include cloth masks, medical/surgical masks, and N95s or KN95s. Eating and/or drinking are prohibited while in the classroom.

Any student not wearing a mask or who consistently forgets one will be dismissed from class. The student will also be referred to the Dean of Students, as outlined by the process on Carthage's Stay Safe website.

Stay Safe Guidelines: <https://www.carthage.edu/carthage-covid-19/stay-safe-carthage/>

Frequently Asked Questions: <https://www.carthage.edu/carthage-covid-19/faqs/>

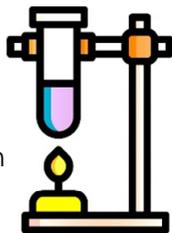
Be successful. Be respectful. Be responsible.

# GENERAL INFORMATION

## CHEM1010 Fall 2021 | COURSE SYLLABUS

### HOW WE ROLL

This course follows a flip lecture style. You are expected to watch the video *before* recitation using the handout as guided notes. We will discuss example problems (worksheets), applications and have group work during recitation. After recitation you will have to complete homework on the topic discussed in the program/app chem101. All homework and quizzes will be done through chem101. Exams will be on paper and in-person during recitation hours.



### EVALUATIONS

**Homework:** Problem assignments are an important part of the course and a substantial fraction of study time should be devoted to completing assigned problems. Problem sets from Chem 101 will be due on Sunday at 1:00 pm. Homework problems constitute 25% of the final course grade. Working with others (while socially distancing) is encouraged.

**Quizzes:** Quizzes will be given to the entire class on a regular basis. Students are expected to complete a quiz during the allotted time, regardless of whether they are in-person or remote that specific day.

**Examinations:** Three examinations and a comprehensive final will be given. You must be present at the time of the exam (virtually or in person as assigned by groups). If you are not in attendance, you will receive a "0" as a grade. You will be allowed to make up an exam at a later date **ONLY** under exceptional circumstances.

**Participation:** Class participation and attendance is an essential part of this course. We will spend some portion of class time discussing concepts/problems in a group environment. Your participation is expected. Teamwork is a common model used in society today.

**Laboratory:** The laboratory portion of this course is essential to understanding and applying the many concepts we will study in class. The laboratory portion of the course comprises 20% of your course grade.

**Attendance in the laboratory is required.** Any possible conflicts with outside activities (sports, clubs, etc.) should be worked out prior to the time of laboratory registration. Labs cannot be made up without the **prior** permission of the laboratory instructor. All lab sections will meet for the first time the week of *September 13th*. Further information about the CHM 1010 Laboratory will be provided by the laboratory instructor.

### REQUIRED COURSE MATERIAL

**Bring charged device (ipad, laptop) to recitation.**

Make sure Chem101 and Schoology are downloaded and accessible.

**Text:** Online and pdf versions of *Chemistry, OpenStax, Edition 1* are free and present on Schoology; print version available at cost. You can download the pdf copy to your computer for easy access.

**Digital Class Materials:** Links to lecture videos, worksheets, quizzes, and other digital materials will be posted to Schoology.

**Electronic Homework:** Chem 101 (\$29.95) will be used for homework. Instructions are available on Schoology.

**Calculator:** A calculator w/ logarithmic function and scientific notation is required. Handheld calculators are permitted during exams, as long as they are not used in a programming mode. Please bring your calculator to all classes and labs. Your calculator should have the four basic arithmetic functions (+, -, ×, ÷), log, ln (natural log), 10<sup>x</sup> (inverse log), e<sup>x</sup> (inverse ln), 1/x, y<sup>x</sup>, and  $\sqrt{\quad}$  keys. It must also be able to handle scientific notation. You do not need a sophisticated and expensive graphing calculator.

**Lab Notebook:** Standard composition notebook with bound pages available at the bookstore.

**Indirect Vent Safety Goggles:** available for purchase from the bookstore. **MUST** make a seal to your face at least across your forehead. *Specific types of goggles allowed.*

**Three-Ring Binders:** I recommend 3 2-inch binders.

### HELP!

**Tutors:** Tutoring is available to assist you with any aspect of the class, including understanding homework problems, preparing for quizzes, and studying for exams. These resources are not engineered especially for struggling students; they are for everyone to maximize your academic growth potential. Please take advantage of them. For information and to book an appointment visit <http://carthage.edu/tutoring>.

# POLICIES

## CHEM1010 Fall 2021 | COURSE SYLLABUS

### CLASSROOM CONDUCT

Discussion and example problems presented during lecture may have direct bearing on exam questions. It is expected that students will respect the instructor and other students by remaining reasonably quiet during class. **Please turn off cell phones during recitation, labs, office hours, and online meetings.** During some periods, students may be asked to respond to instructor questions or discuss a topic with other students around them.

Please note that **RESPECT** while others are talking is necessary in any learning environment (i.e., group discussions, professor or student presentations). Please avoid talking, tardiness, and/or disruptive behavior while the instructor or other students are presenting.

### ACADEMIC MISCONDUCT

Academic misconduct will not be tolerated in this course. This includes attempting to copy, plagiarize, duplicate in any manner, or misrepresent work by others on assignments, quizzes, or exams as the students' own work. This also includes using websites such as Chegg or other homework cheating sites.

Consequences to real or perceived cheating include a failing grade and reporting to the academic advisor and provost. Repeated instances of academic misconduct will be met with failure to pass the course.

Please consult the College Academic Honesty Guidelines in the Student Community Code, <https://www.carthage.edu/community-code/academic-concerns/academic-honesty-guidelines>. Specific information is provided on the Academic Honesty/Remote Learning/COVID-19 Contract.

KINDNESS  
&  
RESPECT

### EQUITY AND INCLUSION

We strongly believe that the most effective learning environment is one where all students feel safe and comfortable. This includes our classrooms, labs, and offices. For this and ethical reasons, we strive to create an environment free of discrimination or judgment. We hope *all* students, regardless of sex, gender, gender expression, race, ethnicity, sexual preference, disability, veteran status, religious and political beliefs, or mental health will feel comfortable and included. If you have a preferred pronoun, please let us know. We will not tolerate discriminatory language from ourselves or our students. If any student feels that we have been insensitive, please contact us. If you are uncomfortable with this, please send us an anonymous letter or contact the Chair of the Chemistry Department (Dr. David Brownholland, [dbrownholland@carthage.edu](mailto:dbrownholland@carthage.edu)).

### STUDENTS WITH DISABILITIES

Carthage College strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers due to your disability (including mental health, learning disorders and chronic medical conditions), please let us know immediately so that we can privately discuss options. To establish reasonable accommodations, you also need to register with Diane Schowalter in Learning Accessibility Services ([dschowalter1@carthage.edu](mailto:dschowalter1@carthage.edu)).

### BASIC NEEDS POLICY

Your safety and well-being, physical and mental, is very important to me. Please feel free to reach out to me if you are struggling for any reason – including issues securing food, housing, or mental or personal safety. In addition to any support I can provide, I will work hard to help you find every resource available to you at Carthage and some are listed in the document titled "Wellness Resources" posted on Schoology.

# GRADING AND OBJECTIVES

## COURSE SYLLABUS | 2016-2017

### GRADING

Grades will be determined by the scale shown below.

Graded Material	Percentage	Letter Grade			
Participation	5%	A	92.5 – 100%	C	72.5 – 77.4%
Homework Assignments	25%	A-	90.0 – 92.4%	C-	70.0 – 72.4%
Quizzes	10%	B+	87.5 – 89.9%	D+	67.5 – 69.9%
Exams	30%	B	82.5 – 87.4%	D	62.5 – 67.4%
Final Exam	10%	B-	80.0 – 82.4%	D-	60.0 – 62.4%
Laboratory	20%	C+	77.5 – 79.9%	F	59.9% and below
Total	100 %				

### COURSE LEARNING OBJECTIVES

1. To carry out dimensional analysis calculations and round the result of a chemical calculation to the correct number of significant figures.
2. To understand how the experimental work lead to our understanding of the nuclear atom.
3. To understand the mole concept and to be able to do calculations with atomic mass and Avogadro's number.
4. To be able to balance chemical equations and use those equations to carry out stoichiometry and limiting reagent calculations.
5. To be able to prepare an aqueous solution of a given molar concentration either by weighing out a solid solute or by diluting a concentrated solution.
6. To be able to identify and balance acid-base, oxidation-reduction, and precipitation reactions.
7. To understand the relationship between a gas' pressure, volume, and temperature and to be able to carry out calculations using the ideal gas law.
8. To be able to use temperature changes and tabulated enthalpies of formation to calculate the enthalpy change accompanying a chemical reaction.
9. To understand the difference between endothermic and exothermic reactions.
10. To understand how light interacts with matter and to be able to write electron configurations for atoms.
11. To understand periodic trends in atomic properties such as ionization energy and electron affinity.
12. To be able to identify and name covalent and ionic compounds.
13. To be able to sketch Lewis dot structures and use those structures to predict molecular shape and bond angles.
14. To understand the concept of orbital hybridization.
15. To understand the concept of electronegativity and to be able to use electronegativity values to determine if a molecule has a dipole moment.
16. To understand the behavior of gases and to be able to predict the response of an ideal gas to changes in temperature, pressure and volume.



# TENTATIVE SCHEDULE

## CHEM1010 Fall 2021 | COURSE SYLLABUS

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Week	Topics	Textbook Chapter
1 9/6 - 9/10	Essential Ideas	Chapter 1
2 9/13 - 9/17	Essential Ideas & Atoms, Molecules, and Ions Quiz (Friday)	Chapters 1, 2
3 9/20 - 9/24	Atoms, Molecules, and Ions/ Composition of Substances and Solutions Quiz (Friday)	Chapters 2, 3
4 9/27 - 10/1	Composition of Substances and Solutions Quiz (Friday)	Chapter 3
5 10/4 - 10/8	Stoichiometry of Chemical Reactions Exam I (Wednesday)	Chapter 4
6 10/11 - 10/15	Stoichiometry of Chemical Reactions Quiz (Friday)	Chapter 4
7 10/18 - 10/22	Stoichiometry of Chemical Reactions/ Thermochemistry Quiz (Friday)	Chapters 4, 5
8 10/25 - 10/29	Fall Break Thermochemistry	Chapter 5
9 11/1 - 11/5	Electronic Structure and Periodic Properties of Elements Exam II	Chapter 6
10 11/8 - 11/12	Electronic Structure and Periodic Properties of Elements/ Chemical Bonding and Molecular Geometry Quiz (Friday)	Chapters 6, 7
11 11/15 - 11/19	Chemical Bonding and Molecular Geometry Quiz (Friday)	Chapter 7
12 11/22 - 11/26	Advanced Theories of Covalent Bonding Thanksgiving Break	Chapter 8
13 11/29 - 12/03	VSEPR	Chapter 8
14 12/6 - 12/10	Exam III Gases	Chapter 9
15 Final Exam Week	Review Final Exam	