



CHEM 1411 HY

General Chemistry 1 Chem 1411-2211HYH-FA2022

**Wednesdays from 6:00 PM to 9:00 PM
Online through Blackboard**

Instructor Information:

Name: Paul Clemens, PhD

Email: pclemens@com.edu

Student (Office) hours and location: Online via zoom, by appointment.

Required Textbook/Materials: The textbook and homework system are available immediately upon access to Blackboard at the start of the semester.

You can access the FREE online text at:

[https://chem.libretexts.org/Bookshelves/General_Chemistry/Map%3A_Chemistry -
The Central Science \(Brown et al.\)](https://chem.libretexts.org/Bookshelves/General_Chemistry/Map%3A_Chemistry_-_The_Central_Science_(Brown_et_al.)) (Links to an external site.)

You can access the FREE ancillary online text at:

<https://openstax.org/details/books/chemistry-atoms-first-2e>

Additional Materials: An inexpensive scientific calculator (e.g., TI-30). You most likely have one on your cellphone.



Texas Instruments TI-30Xa Scientific Calculator

Price: \$9.00

Course Description: Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Basic laboratory experiments supporting theoretical principles presented in lecture; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports.

Course Requirements: Students are expected to meet the following course requirements.

Stay Current: You will use the Course Outline, the online calendar, the discussion forums, communication with your instructor, and communication with your classmates to stay abreast of course scheduling.

Meet Learning Objectives: You will cover the course material listed in the Student Learning Objectives by accessing information from the textbook, from Sapling Learning, from the Internet, from the Library, and from other resources, as needed.

Stay in Communication: You will maintain communication with your classmates and instructor, as needed. Typical methods for communicating include interpersonal communication, email, text messaging, instant messaging, and discussion forum postings.

Complete Assessments: Your knowledge of the material covered in the Student Learner Outcomes is assessed using online discussions, online homework, a presentation, exams, and laboratory experiments.

Computer Requirements: You will need to have access to a computer with the following resources.

- Internet access through a wired Ethernet connection
- A contemporary web browser capable of viewing flash video
- Java installed and updated
- An [e-mail account](#) (COM provides free email for students)
- [Microsoft Office, Microsoft OneNote, and Microsoft Teams](#) (COM offers free Office 365 access for students)

- [Respondus LockDown Browser](#) (COM provides this browser through a link on the Blackboard login page)
- [Vernier Graphical Analysis](#) (Vernier offers free software for students)
- File conversion software for converting image files to PDF files ([Microsoft Office Lens](#), [Adobe Scan](#), and [Genius Scan](#) are free for both Android and iOS)
- A PDF reader

You are responsible for maintaining your own hardware and software. If you are incapable of maintaining your own system, please consider taking this class when use of campus computers has been restored.

THIS COURSE WILL REQUIRE A CONSIDERABLE TIME INVESTMENT BY YOU - - - PLEASE BE PREPARED!

Plan on dedicating around 20-25 hours per week studying for this course (and probably a little bit more initially while you are becoming familiar with the course materials). This works out to around 4-5 hours every five to six days out of a 7 day week. You will need to structure your life where you can dedicate this time to the class. Use TIME MANAGEMENT TOOLS such as a scheduler / planner to ORGANIZE YOUR TIME! THIS IS THE MOST IMPORTANT SECRET TO YOUR SUCCESS IN THIS COURSE. You will get out of the class what you put into in.....it is all up to you! Hint: DO ALL THE HOMEWORK AT THE END OF EACH ASSIGNED CHAPTER.

Determination of Course Grade/Detailed Grading Formula:

Homework (10%):

The student is expected to complete and understand the assigned homework. The homework is located in the Canvas shell. After reading the chapter you need to work the homework set. This assignment should be completed before 11:59 p.m. of the due date. The homework is used as a learning tool to master the chapter material; thus you may take the homework as many times as necessary to earn full credit.

Regular Exams (40%):

Examinations will consist of twelve, 25 multiple choice question, non-cumulative regular chapter exams. **The exams will require that you use LockDown Browser.** The learner is expected to read and understand each chapter before the online test is accessed. You will have 120 minutes to complete each exam. These exams will consist of questions modeled from the homework. Make-up exams will not normally be given, so make every effort to take the exams on their scheduled dates. CELLULAR PHONES, INTERNET ACCESSABLE WATCHES, PROGRAMMABLE/INTERNET ACCESSABLE CALCULATORS, AND NOTES ARE NOT ALLOWED. You are allowed a periodic table, blank scratch paper, a writing utensil, and a non-programmable calculator. The 40% total exam score will be calculated by taking an average of twelve regular exam scores. Hint: do all the homework. The student may only take each exam once. Each chapter exam needs to be taken before 11:59 p.m. of the due date.

Threaded Discussions (10%):

Threaded discussions are an integral part of this course and simulate traditional classroom discussions. A threaded discussion allows each student to post comments to a discussion topic, react to other students' comments, and respond to ideas shared by you or by others in the course. The threaded discussions truly "belong" to the class.

Discussions take place asynchronously - each threaded discussion begins with a topic identified by the instructor. Students log into the course when they can and then post to the threaded discussion at their convenience. Responses to each topic display below the topic. Students usually enjoy using the threaded discussions because they can compose their thoughts before they post a comment, respond more thoughtfully to discussion topics, and engage in lively debates that are less threatening than in a live classroom environment.

The instructor will post an original thread and each student is expected to contribute to the discussion. Contributions should consist of one original statement or comment and two peer responses to other student's comments. Comments such as "I agree with that" without any substantiation will not be acceptable.

Post a minimum of **three** college level QUALITY responses for full-credit. Please post your threads by 11:59 p.m. of the due date.

Final Exam (20%):

The cumulative final examination will consist 50 multiple choice questions. The learner is expected to understand all course information before the online test is accessed. **The exam will require that you use LockDown Browser.** You will have 120 minutes to complete the exam. CELLULAR PHONES, INTERNET ACCESSABLE WATCHES, PROGRAMMABLE/INTERNET ACCESSABLE CALCULATORS, AND NOTES ARE NOT ALLOWED. Please note that all students are required to take the final (no student can be exempted). You are allowed a periodic table, blank scratch paper, a writing utensil, and a non-programmable calculator. The student may only take the exam once. The exam needs to be taken before 11:59 p.m. of the due date.

Laboratory (20%):

The student is expected to complete and understand the assigned labs. The lab assignments are located in the Canvas shell. The pre-lab is expected to be completed before attending the scheduled lab meeting. The lab and post-lab are expected to be completed before 11:59 p.m. of the due date. Completed labs are to be submitted to the blackboard classroom.

On the first day of lab a safety video will be shown (about 35 min long). You should be especially aware of the need for adequate *eye protection* in the laboratory. **Protective glasses or goggles must be worn at all times during the laboratory period.** Any student *not* wearing protective glasses or goggles after the experiment has begun may be given a *zero* for that experiment and excused for the laboratory meeting!

It is suggested that you purchase your own safety glasses or goggles:



Generic Safety Glasses
Price \$4.50



Generic Safety Glasses
Price \$ 3.50

It is also recommended that students wear old clothing to lab, and have a second set of clothes readily available, should exposure to chemicals occur and a change of clothing is necessary. Alternatively, a lab jacket may be purchased:



Generic Lab Coat
Price \$ 15.00-20.00

Chemistry is primarily a "wet" science. The laboratory sessions are a necessary component of learning chemistry. Laboratory experiments will allow students to practice skills and make observations of concepts, theories, and laws. Given the hands-on nature of the laboratory, participation in this portion of the course is crucial. The face-to-face laboratory sessions provide an opportunity to demonstrate your ability to safely perform the experiment, physically manipulate the equipment, make experimental observations, and work cooperatively with your lab Group. Each student must successfully complete 70% or more of all laboratory assignments to pass the laboratory portion. Failure to complete 70% or more of the laboratory assignments will result in a failing laboratory grade and a failing grade for the course.

Rules of conduct for the laboratory must be followed to reduce the risk of injury. Failure to follow the safety rules will result in your dismissal from the course. To help ensure that each student is

familiar with laboratory safety, all students are required to complete Experiment 1: Chemistry Laboratory Safety before performing subsequent labs.

Students are required to read the appropriate laboratory experiment and be prepared before the start of each laboratory session. Any special instructions, techniques or changes to the procedure will be discussed prior to the start of or during the experiment. Failure to be prepared for the laboratory session may delay or prevent you from performing the experiment.

The laboratory component will allow students to practice skills and make observations of concepts, theories, and laws. All lab components should be discussed with classmates to foster collaboration and develop teamwork.

The Laboratory Grade is determined by taking a weighted average for Lab Assignment Average and the Lab Report Average. Each Lab Assignment can be composed of a pre-lab assignment, a lab procedure, and a post-lab assignment. Each Lab Report is a formal report for the selected lab procedures.

The Pre-lab Assignments require students to work either individually or cooperatively, in lab Groups (i.e., teams), to achieve the following outcomes.

- Read the lab background information or introduction
- Read the lab procedure.
- Answer questions concerning concepts and procedures from the lab experiment.
- Submit the completed assignment *before* starting the experiment.

The Lab Procedures require that students work either individually or cooperatively, in lab Groups (i.e., teams), to achieve the expected outcomes.

Expected outcomes for face-to-face labs:

- Successfully complete the lab within the duration of the lab period.
- Clearly and concisely record data and observations on the data sheets for the lab experiment.
- Perform the necessary calculations and interpretations.
- Interpret the results of the any calculation using that data or data provided for that purpose.
- Answer questions concerning concepts, theories, and laws illustrated in the experiment.
- Submit the completed assignment as scheduled.

Expected outcomes for online labs:

- Clearly and concisely record data and observations.
- Create the necessary graphs from the observed data.
- Perform the necessary calculations.
- Interpret recorded data and observations, generated graphs, and calculated values.
- Report conclusions from interpreted data and observations, graphs, and calculations.

- Submit the completed assignment as scheduled.

The Post-lab Assignments require that students work independently or cooperatively, in lab Groups (i.e., teams), to achieve the following outcomes.

- Perform calculations based on the experiment.
- Interpret the data based on the experiment.
- Interpret the results of the any calculation using that data or data provided for that purpose.
- Answer questions concerning concepts, theories, and laws illustrated in the experiment.
- Submit the completed assignment as scheduled.

Each Lab Assignment is the sum of the points for the pre-lab assignment, the lab procedure, and the post-lab assignment. It is worth a maximum of 10 points for each lab.

The Lab Assignments Average is calculated as the simple average of the lab assignment scores. It is worth a maximum of 10 points.

The lab reports are designed to achieve the following outcomes.

- Provide an overview of the pre-existing work associated with the experiment.
- Summarize the data collected and observations recorded in the experiment.
- Present the data and observations in a more accessible and readable format.
- Present the interpretations of the data and observations.
- Contribute to the existing knowledge.

You can keep track of your earned points on Blackboard through the Grades link. The above categories will be listed in the online grade book in Blackboard. If you have any questions concerning your grade, please contact me through your COM email account. To save us both time when contacting me, clearly state the question, the assessment and other orienting information, and the nature of your concern. The maximum total points that can be earned for the course is calculated by summing the weighed percentages of the grading categories.

Category	Percentage
Discussion Grade	10.0%
Homework	10.0%
Semester Exams	40.0%
Final Exam Grade	20.0%
Lab Grade \geq 70% (Lab Science Policy)	20.0%
Total Points	100.0%

Grading Scale: The table contains the grading scale applied to the points calculation previously described.

FN — An F_N may be assigned at the discretion of the instructor in accordance with college policy.

I — An incomplete may be assigned at the discretion of the instructor in accordance with college policy.

W — A withdrawal may be assigned in accordance with college policy.

Letter Grade	Final Average
A	89.5 – 100
B	79.5 – 89.4
C	69.5 – 79.4
D	59.5 – 69.4
F	< 59.5

Lab Science Policy:

This course consists of both a lecture and laboratory grade component. Students must earn a 70% or better in the laboratory component to successfully pass the course. Earning less than 70% in the laboratory component will result in an F for the course regardless of the lecture grade. Passing the laboratory component and failing the lecture component will not guarantee a passing grade for the course. Deviations from this policy will be at the sole discretion of the instructor.

Late Work, Make-Up, and Extra-Credit Policy:

Students are responsible for all information covered in the course. It is your responsibility to complete and submit all assignments and tests by their respective due dates. No late work will be accepted. No deadline extensions will be granted. No modifications will be made to the course schedule. No extra credit is offered in this class.

Attendance Policy:

All students registered in this class are expected to attend all face-to-face sessions, to log in to this course at least twice each week, to participate in the class during those online sessions, and to follow the same attendance policy as the traditional classes offered on campus. This policy follows the attendance policies prescribed in the current College Catalog (<http://coursecatalog.com.edu/>).

Each student must successfully attend and complete 70% or more of all laboratory assignments to pass the laboratory portion. Failure to attend and complete 70% or more of the laboratory assignments will result in a failing laboratory grade and a failing grade for the course.

Failing to attend class, log into Blackboard, or to complete your work as scheduled demonstrates poor progress towards obtaining the course goals (objectives) and is detrimental to learning course material. If you fail to attend class or fail to log into Blackboard and are demonstrating poor progress towards obtaining the course goals (objectives), the instructor may administratively withdraw you from the course.

An estimate of the time per week that is necessary to successfully complete the course will vary with the expected or desired outcome by the student, the pre-existing skills and knowledge

possessed by the student, the ability of the student to acquire and assimilate the course content, and the time required by the student to complete the assignments. A long-standing estimate is to multiply the number of lecture credit hours for a course by 2 or 3 and lab credit hours by 1 or 2. For this four-hour credit course of 3 lecture credits and 1 lab credit, that result is 7 to 11 hours. Thus, one should expect to spend 3 hours for the lecture component, plus 3 hours for the lab component, plus 7 to 11 hours studying per week on this course. Don't take my word for it, here are some links that validate this calculation.

Semester Survival Guide by Blinn College: <https://www.blinn.edu/academic-advising/survival-guide.html>

How Many Hours a Day Do You Have to Study for College Classes? by M.T. Wroblewski: <http://oureverydaylife.com/many-hours-day-study-college-classes-4165.html>

How Much Time Should I Spend Studying in College? by Kelci Lynn Lucier: <http://collegelife.about.com/od/academiclife/f/How-Much-Time-Should-I-Spend-Studying-In-College.htm>

Manage Your Time by HowtoStudy.com: <http://www.howtostudy.com/manage-your-time/>

Of course, mileage will vary and there are no guarantees that this will result in the desired outcome.

Communicating with your instructor: ALL electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means. (Faculty may add additional statement requiring monitoring and communication expectations via Blackboard or other LMS)

The best way to reach your instructor is by email. Please use your @com.edu email address. Expected that mails from other sources will be filtered from my inbox and your will receive no reply. If you prefer to meet with me virtually, please make an appointment. I will strive to reply to emails from @com.edu addresses and questions from forum posts, which are made on weekdays, within twenty-four hours. Expect that I will be unavailable on weekends.

Student Learner Outcomes	Maps to Core Objectives	Assessed via this Assignment
1. Define the fundamental properties of matter.	CT	Selected Exam Questions
2. Classify matter, compounds, and chemical reactions.	CT CS	Selected Exam Questions Presentation

Student Learner Outcomes	Maps to Core Objectives	Assessed via this Assignment
3. Determine the basic nuclear and electronic structure of atoms.	CT	Selected Exam Questions
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.	CT	Selected Exam Questions
5. Describe the bonding in and the shape of simple molecules and ions.	CT	Selected Exam Questions
6. Solve stoichiometric problems.	EQS	Selected Exam Questions
7. Write chemical formulas.	CT	Selected Exam Questions
8. Write and balance equations.	CT	Selected Exam Questions
9. Use the rules of nomenclature to name chemical compounds.	CT	Selected Exam Questions
10. Define the types and characteristics of chemical reactions.	CT	Selected Exam Questions
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.	EQS	Selected Exam Questions
12. Determine the role of energy in physical changes and chemical reactions.	CT	Selected Exam Questions
13. Convert units of measure and demonstrate dimensional analysis skills.	EQS	Selected Exam Questions
14. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.	TW	Selected Experiment Grades
15. Demonstrate safe and proper handling of laboratory equipment and chemicals.	CT	Selected Experiment Grades
16. Conduct basic laboratory experiments with proper laboratory techniques.	TW	Selected Experiment Grades
17. Make careful and accurate experimental observations.	EQS	Selected Experiment Grades

Student Learner Outcomes	Maps to Core Objectives	Assessed via this Assignment
18. Relate physical observations and measurements to theoretical principles.	EQS	Selected Experiment Grades
19. Interpret laboratory results and experimental data, and reach logical conclusions.	CT	Selected Experiment Grades
20. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.	CS	Laboratory Report Grade
21. Design fundamental experiments involving principles of chemistry.	CT	Selected Experiment Grades
22. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.	CT	Selected Experiment Grades
23. Demonstrate the ability to work effectively with others to support and accomplish a shared goal, while recognizing and respecting different viewpoints.	TW	Lab Grade

Academic Dishonesty: Any incident of academic dishonesty will be dealt with in accordance with college policy and the Student Handbook. Academic dishonesty, such as cheating on exams, plagiarism, or collusion, is an extremely serious offense and will result in at least a grade of zero on that assignment and the student will be referred to the Office of Student Conduct for the appropriate disciplinary action. Additionally, administrative withdrawal from the course prior to the withdrawal deadline for the semester or being assigned a grade of F after the withdrawal deadline are possible and solely at the discretion of your Instructor.

Student Concerns: If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact Ms. Sheena Abernathy, Science Department Chair, at 409-933-8330/sabernathy@com.edu.

Course outline:

Proposed Class Schedule:

Due	Assignment
8/25	Introduction Discussion Due – AND - Academic Integrity Quiz Due

	<i>NOTE: THESE TWO ASSIGNMENTS ARE MANDATORY. FAILURE TO COMPLETE WILL RESULT IN THE STUDENT BEING DROPPED FROM THE CLASS</i>
8/30	Module 1 1. Read Chapter 1 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
9/8	Module 2 1. Read Chapter 2 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
9/17	Module 3 1. Read Chapter 3 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
9/26	Module 4 1. Read Chapter 4 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
10/5	Module 5 1. Read Chapter 5 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
10/14	Module 6 1. Read Chapter 6 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
10/23	Module 7 1. Read Chapter 7 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework

	5. Take the module exam
11/1	Module 8 1. Read Chapter 8 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
11/10	Module 9 1. Read Chapter 9 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
11/19	Module 10 1. Read Chapter 10 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
11/28	Module 11 1. Read Chapter 11 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
12/7	Module 12 1. Read Chapter 12 in your textbook 2. Watch the videos 3. Participate in the discussion 4. Complete the homework 5. Take the module exam
12/8-12/9	Take the final exam. Due 12/9 at midnight.

Proposed Lab Schedules – CHEM 1411 (Tentative)

Week	Dates	Lab
1	8/24	Introduction, Syllabus Review, Canvas Review
2	8/31	*Lab 1: Safety
3	9/7	*Lab 2: Basic Laboratory Techniques
4	9/14	*Lab 3: Nomenclature Lab
5	9/21	*Lab 4: Trends in the Periodic Table
6	9/28	Spectroscopy
7	10/5	*Lab 8: Lewis Structures & Shapes of Molecules and Ions
8	10/12	*Lab 5: Determination of the Empirical Formula of a Compound Lab

9	10/19	Empirical Formula
10	10/26	*Lab 6: Table Salt from Baking Soda
11	11/2	Types of Chemical Reactions
12	11/9	*Lab 7: Percentage of Water in a Hydrate
13	11/16	*Lab 9: Titration of Acid and Bases
14	11/23	NO LAB - Thanksgiving
15	11/30	NO LAB - Deadweek
16	12/7	NO LAB – Final Exam

All labs are due one week after assigned.

Institutional Policies and Guidelines

Grade Appeal Process: Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook. <https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf.

An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor's professional judgment of the quality of the student's work and performance is also not an admissible basis for a grade appeal.
https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf

Academic Success & Support Services: College of the Mainland is committed to providing students the necessary support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

ADA Statement: Any student with a documented disability needing academic accommodations is requested to contact Michelle Brezina at 409-933-8124 or mvaldes1@com.edu. The Office of Services for Students with Disabilities is located in the Student Success Center.

Textbook Purchasing Statement: A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Withdrawal Policy: Students may withdraw from this course for any reason prior to the last eligible day for a "W" grade. Before withdrawing students should speak with the instructor and consult an advisor. Students are permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 1st 8-week session is October 5. The last date to withdraw from the 16-week session is November 18. The last date to withdraw for the 2nd 8-week session is December 1.

FN Grading: The FN grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The FN grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the FN grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an FN grade.

Early Alert Program: The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention are very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

Resources to Help with Stress:

If you are experiencing stress or anxiety about your daily living needs including food, housing or just feel you could benefit from free resources to help you through a difficult time, please click here <https://www.com.edu/community-resource-center/>. College of the Mainland has partnered with free community resources to help you stay on track with your schoolwork, by addressing life issues that get in the way of doing your best in school. All services are private and confidential. You may also contact the Dean of Students office at deanofstudents@com.edu or communityresources@com.edu.