



**CHEM 1412.101HY**  
**General Chemistry 2**  
**Fall 2021**  
**Fridays from 9:30 AM to 12:20 PM in STEAM 346**  
**Online through Blackboard and Achieve**

**Instructor Information:**

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**Student Hours:** Mondays from 10:00 to 10:30 AM and 2:30 to 3:30 PM

Tuesdays from 3:00 to 4:30 PM

Wednesdays from 2:30 to 4:30 PM

Thursdays from 1:30 to 3:30 PM

Fridays from 12:30 to 1:00 PM

**Course Communication:** The best way to reach me is by email. Please use your @com.edu email address. Emails from other sources may be delayed or filtered from my inbox. This may delay or prevent my reply to your email. If you prefer to meet with me in person or virtually, please make an appointment. I will strive to reply to emails and forum posts, which are made on weekdays, within twenty-four hours. Expect that I will be unavailable on weekends. Replies to voice messages left on my office telephone will take longer for me to reply than an email. Also, I will most likely reply to a voice message by email. So, if you don't mind waiting an extended time for my reply, leaving a voice message is another option.

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

Required Textbook: [Chemistry Atoms First, 2nd ed.](https://openstax.org/details/books/chemistry-atoms-first-2e) from OpenStax, 2019. Openstax.Org. Print Book ISBN-13 978-1-947172-64-7, PDF Version ISBN 978-1-947172-63-0, <https://openstax.org/details/books/chemistry-atoms-first-2e>.

Good news, your textbook for this class is immediately available for free online! If you prefer, you can also get a print version at a very low cost. Your book is available in web view and PDF for free. You can also choose to purchase on iBooks or get a print version via the campus bookstore or from OpenStax on Amazon.com.

You can use whichever formats you want. Web view is recommended since the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book

page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

Inclusive Access to courseware is available through VitalSource digitally. This course uses the Macmillan Learning Achieve platform which provides online resources such as interactive learning modules, homework (self-assessments), and formative assessments. Cost of the course materials for this section is included in the fees for the course. The course materials are available on the first day of class and you will be given the opportunity to opt-out of the course materials prior to the census day of the class. If you choose not to use the course materials, you will be reimbursed after census day of the class and lose access to those materials. The materials are not refundable after the census day.

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

**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.

**Course Description:** Chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry. Basic laboratory experiments supporting theoretical principles previously listed; introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports.

**Prerequisite:** [CHEM 1411](#) with a grade of "C" or better.

**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.

- Discussion Forums

There will be four graded discussion topics posted during the semester. Each topic will be available for a limited time during the semester. The first and fourth Discussion Forums are meant to be an open discussion based on the intersection between chemistry and your interests and opinions. The second and third Discussion Forums are meant to be an academic discourse focusing on the topic and using research and references to support your position.

For both type of posts, your response to the topic should address the topic and not contain gratuitous, tangential, or spurious comments. Replies in response to posts by other students should address the content and position of that post. Responses containing gratuitous, tangential, or spurious comments are unwelcome. Postings that are composed of complete sentences, that clearly address the topic, and that contain proper citation(s) are graded more favorably than jotted notes, incomplete thoughts, and undocumented claims.

- The first discussion topic is designed to introduce you to the Discussion Forums and to determine your motivation for taking the course.
- The second topic is a discussion of addressing how you will use chemistry in your career and in your life.
- The third discussion topic will focus on the impact chemistry has on our world.
- The fourth discussion topic attempts to determine what parts of the course that you found most valuable.

Students are encouraged to make multiple posts to a topic as they learn more about the topic or to respond to posts by other students. You can accumulate points, up to the maximum points per discussion topic, by making multiple unique posts to a topic or in response to the post from another student. The directions for each forum describe how points are earned for that forum. The first forum is worth a maximum of 10 points. The

second and third forums are worth a maximum of 35 points each. The fourth forum is worth a maximum of 20 points. Your Discussion Postings Grade is the sum of the three Discussion Forum grades; it is worth a maximum of 100%.

- Presentation:

There is one Online Presentation for this semester. It consists of three parts.

1. Selection and assignment of your presentation topic.
2. Researching your presentation topic
3. Creating and submitting your presentation.

Each student will select a topic, plus two alternates, from a description or list of topics posted to the Presentation Selection Discussion Forum. By posting to the forum, you will time stamp the selection of your topic. Only one student per topic is permitted. After the deadline for the topic selection has past, your Instructor will confirm your topic by posting a list of topic assignments in Blackboard. Topics are assigned based on the chronology of the posts. Any student that fails to submit a selection post to the forum by the deadline will be assigned a topic by your Instructor. Selecting a topic, selecting two alternate topics, and making a post of your selection with those two alternates by the deadline for submission is worth a maximum of 10 points.

Once you have verified your assigned topic, you should review the grading rubric that will be used to provide direction in researching and creating your presentation and to determine the scoring for the components of your presentation. Then, for the second step, each student will research their topic and obtain the content required for the presentation that is found in the rubric for the presentation.

Next, the presentation is developed by creating a presentation using Microsoft PowerPoint. Since this General Chemistry has an emphasis for science majors, ACS style is used to cite references. The completed presentation should adhere to the directions and rubric. Finally, the completed presentation will be uploaded as an attachment to the assignment before the deadline. Be certain to verify your attachment before submitting your assignment. The presentation is worth a maximum of 90 points. Students that submit their outline or presentation as an attachment to an email, or in printed form will receive a maximum of half credit for that part of the project.

The Presentation Grade, the sum of the Presentation Selection Discussion Forum and the Presentation, is worth a maximum of 100%.

- Learning Curve Self-assessments

There will be one or more Learning Curve Self-assessments, one or more for each chapter, available during the semester. The Learning Curve Self-assessment are provided online through the Sapling Learning system. These self-assessments are designed and

administered to promote mastery of course objectives addressed in each chapter from your textbook. Once started, you will have until the deadline to complete and submit your attempt. The system is an adaptive learning module that allows for multiple attempts and is designed to help you master the concepts and calculations of the material. The purpose of allowing the additional attempts while answering the questions is to promote mastery of the material. By learning from mistakes made during the initial attempt you will have an opportunity to correct misconceptions and demonstrate mastery of the material. This will also help prepare you for the exams.

These are self-assessment that are not directly factored into your grade calculation.

- Chapter Tests

The Chapter Tests are given online through Macmillan Learning Achieve. These tests are designed and administered to promote mastery of the selected Student Learner Outcomes. These open book tests allow you to reference your course materials and Internet resources during the assessment. The tests are composed of calculation, matching, multiple choice, and true/false questions.

Each Chapter Test is worth a maximum of 100%. The Chapter Test Average is calculated as the simple average for the Chapter Test scores after dropping the lowest score. The maximum value for the Chapter Tests Average is 100%.

- Semester Exams

There will be three Semester Exams given during the semester. The questions on these exams may be composed of calculation, matching, multiple choice, short answer, and true/false formats.

The First Semester Exam is designed and administered to evaluate retention of course content for the material covered in Chapters 10 through 12.

The Second Semester Exam is designed and administered to evaluate retention of course content for the material covered in Chapters 13 through 16.

The Third Semester Exam is designed and administered to evaluate retention of course content for the material covered in Chapters 17, 20, and 21.

The three Semester Exams are administered as an individual exam through Blackboard using the Respondus LockDown Browser with Respondus Monitor. The exam will be taken on your personal computer that has been properly configured. Each exam is worth a maximum of 100%.

- Final Exam

There will be one cumulative exam given at the end of the semester. It covers content from all ten chapters. This Final Exam is composed of multiple choice, matching, and true or false questions.

The Final Exam is designed and administered to evaluate your knowledge of the Student Learner Objectives for this course. The topics for the Final Exam correspond to Student Learner Objectives one through thirteen. The Final Exam is an individual exam through Blackboard using the Respondus LockDown Browser with Respondus Monitor. The exam can be taken on your personal computer that has been properly configured. The exam is scheduled during Final's week at the end of the semester. It is worth a maximum of 100%.

- Laboratory Grade

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. Due to the limitations imposed by the COVID-19 pandemic, if a student misses their scheduled lab time for Experiment 1, they will be administratively withdrawn from the course.

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 100 points for each lab.

The Lab Assignments Average is calculated as the simple average of the lab assignment scores that remain after dropping the lowest score. It is worth a maximum of 100 points.

The Lab Report Average is calculated as the simple average of the lab report scores that remain after dropping the lowest score. 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.

The Lab Report Average is calculated as the simple average of the lab report scores that remain after dropping the lowest score. Each lab report is based on a maximum of 100 points.

- Syllabus Quiz – Bonus

At the start of the semester there is a syllabus quiz. The role of this quiz is to help you become familiar with the contents of the course syllabus at the start of the semester. Students can work independently or collaboratively on the quiz. The Syllabus Quiz Grade is worth a maximum of 100%.

- Surveys & Course Evaluation – Bonus

There are three surveys this semester that are provided through Blackboard. The surveys are to help your Instructor improve the design of the course and to address navigation problems. There is a single COM Course Evaluation which is administered by the College through CoursEval. Each survey is anonymous. The three course surveys are worth a maximum of 25 points each and the COM Course Evaluation is worth 25 points. The Survey Grade is the sum of the points for the three surveys. It is worth a maximum of 100%.

**Determination of Course Grade/Detailed Grading Formula:** Your grade for the course is determined by the scores that you earn on the assignments and assessments. The points you earn for this course are the weighted sum of the grading categories.

#### Discussion Forums Grade

- There are four Discussion Forums. Forum 1 is worth a maximum of 10 points, Forums 2 and 3 are each worth a maximum of 35 points, and Forum 4 is worth a maximum of 20



points. A grading rubric is provided for each forum. The grade earned for each forum is the score assigned to the posts and replies in accordance with the grading rubric and due date.

- The Discussion Forums Grade is the sum for the four forum scores. It is worth a maximum of 100% and 5% of the course grade.

#### Presentation Grade

- Presentation Topic Selection Forum
  - The Presentation Topic Selection Forum is worth a maximum of 10 points.
- Presentation Assignment
  - The Presentation Assignment is worth a maximum of 90 points.
- The Presentation Grade is the sum of the points from the Presentation Topic Selection Forum and the Presentation. It is worth a maximum of 100% and 10% of your course grade.

#### Semester Exams and Chapter Tests Average Grade

- The Semester Exams and Chapter Tests Average is the simple average for the highest three scores with the lowest score dropped from the calculation.
  - Homework Average
    - The Homework Average is calculated as the simple average for the Homework scores after dropping the lowest score.
  - Semester Exams
    - Each exam is worth a maximum of 100%.
- The Semester Exams and Homework Average Grade is worth a maximum of 100% and 45% of your course grade.

#### Final Exam Grade

- The Final Exam is worth a maximum of 100% and 15% of your course grade.

#### Lab Grade

- Lab Assignments Average
  - Each lab assignment is worth a maximum of 100 points.
  - The Lab Assignment Average is calculated as the simple average of the lab assignment scores remain after dropping the lowest score. It is worth 85% of your Lab Grade.
- Lab Reports
  - Each lab report is worth a maximum of 100 points.
  - The Lab Reports Average is calculated as the simple average of the quiz scores that remain after dropping the lowest score. It is worth 15% of your Lab Grade.
- 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. The Lab Grade is worth 25% of your course grade.

### Bonus

- Syllabus Quiz Grade – Bonus
  - The maximum points that can be earned for the Syllabus Quiz is 100 points and is a bonus worth 0.5% of your course grade.
- Survey Grade – Bonus
  - Course Surveys
    - Submitting a completed Course Survey in accordance with the due date is worth a maximum of 25 points.
  - Course Evaluation
    - Completing and submitting the Course Evaluation through CoursEval is worth a maximum of 25 points.
  - The Survey Grade is the sum of the points for completing and submitting the two Course Surveys by the due date plus the points for completing and submitting the Course Evaluation by the deadline. It is worth a maximum of 100 and is a bonus worth 0.5% of your course grade.

You can keep track of your earned points on Blackboard and Achieve through the Grades link. The above categories will be listed in the online grade book in Blackboard. Other grades will be released as they become available. If you have any questions concerning your grade, please contact me. To save us both time when contacting me, clearly state the question, the assessment,

Category	Percentage
Discussion Forums Grade	5.0%
Presentation Grade	10.0%
Semester Exams and Homework Average Grade	45.0%
Final Exam Grade	15.0%
Lab Grade $\geq$ 70% (Lab Science Policy)	25.0%
<b>Total Points</b>	<b>100.0%</b>
Survey Grade (Bonus)	0.5%
Syllabus Quiz Grade (Bonus)	0.5%
<b>Total Points with Bonus</b>	<b>101.0%</b>

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.

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

$F_N$  — 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 in Percentage
A	89.5 – 101.0
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 & Extra Credit Policy:** The course is designed to accommodate some of life's mishaps, difficulties, or tragedies by providing extended deadlines for selected assessments and assignments. The course evaluation through CoursEval, the pre-lab assignments, and the exams are exceptions. After the due date, there may be an extended deadline to submit your assessment or assignment. After the extended deadline, the assignment or assessment is closed, and the link may be inaccessible or removed. Expect that no additional time will be provided.

The syllabus quiz, course surveys conducted by your instructor (not the CourseEval course evaluation), all graded forums, and the presentation have a seven-day extension beyond the due date with no point deduction. The lab and post-lab assignments have a 24-hour extension beyond the due date. After the extended deadline has passed, the course surveys, graded forums, lab assignments and post-lab assignments are closed, and the points are forfeited. After the extended deadline for the presentation has passed, it can be turned in late, for a maximum of half-credit, until the Sunday preceding the final exam.

The Chapter Tests have up to an extension with a loss of 5% per day until either the extended deadline the available points expire or the Sunday preceding the final exam. After the extended deadline has passed or the points have expired, the Chapter Tests are closed, and the points are forfeited.

If this provides insufficient accommodation, then the severity of life's mishap, difficulty, or tragedy is beyond the capacity of this course. Anyone experiencing such difficulty should consider withdrawing from the course and taking it in a future semester after the difficulty has passed.

If an exam is missed, a score of zero is recorded.

Students that seek additional learning opportunities and are maintaining an average for the course of 95% or better are welcome to request extra credit work. The extra credit work serves to enrich the learning opportunities of students beyond the course requirements. Since this work is beyond the requirements of the course, any extra credit work will have no bearing on the grade in the course. Honors credit is unavailable in this course.

**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 and Macmillan Achieve, 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 or Macmillan Achieve and are demonstrating poor progress towards obtaining the course goals (objectives), the instructor may administratively withdraw you from the course. Examples of insufficient progress include, but are not limited to, failure to log into Blackboard for a one-week period, failure to submit four or more assignments by the deadlines for those assignments, failure to attend and complete the scheduled safety lab, failure to attend/complete 70% or more of the labs, failure to maintain a passing average for the class, or demonstrating poor progress towards obtaining the course goals (objectives). Let's say a student may log into the course multiple times a week but fails to complete or attempt the course evaluations. Since they have failed to demonstrate knowledge of the material through evaluation, this student has demonstrated poor progress towards obtaining the course objectives. Other scenarios include a student that has missed the safety lab or that is attending (completing) less than 70% of the lab sessions. Since they have failed to learn lab safety protocols or has failed to attempt lab procedures evaluated through the performance lab procedure, this student has demonstrated poor progress towards obtaining the course objectives. In both cases, the student may be administratively withdrawn from the course. An administrative withdrawal for insufficient progress is solely at the discretion of your Instructor.

**Tardiness Policy:** Tardiness applies to the classroom meeting and not to logging into the content management system for online learning. Students that arrive after the start of class are responsible for the material that they missed during their absence. Upon arriving to class, tardy students are expected to discretely join the class in progress. Students that repeatedly arrive late and disrupt the class upon their arrival will be held accountable according to college policy. The very point of the online access is to allow students to access course materials and selected evaluations at their convenience within the time frame scheduled for completing the course work as set by the instructor. If you are late for using on-campus computers, you only penalize yourself by possibly having insufficient time to complete or being unable to start the assignment before the Testing Center, the Innovations Computer Lab, or the Library closes for the day.

**Classroom Conduct Policy:** College of the Mainland requires that students enrolled at COM be familiar with the Standards of Student Conduct, which can be found in the on-line Student Handbook. <https://www.com.edu/student-services/student-handbook>. Students are expected to be familiar with and abide by the Student Code of Conduct. During lab sessions, students are required to follow the COM Chemistry Lab Safety Guidelines as agreed upon completion of the Safety Lab. Any violations of the Code of Conduct will result in a referral to the Dean of Students and may result in dismissal from this class.

**Technology Outage:** Students are responsible for maintaining their hardware, software, and Internet connection to the course. If you are incapable of maintaining your own system, please use

the computers available on campus or take the CL section of the course. (NB, Access to college computers is limited by the hours of operation for the computer labs and library. You are responsible for staying abreast of these times.). No additional time will be provided for hardware, software, or Internet connection problems that interfere with your ability to access the course and complete your assignments and assessments.

If a verifiable interruption in the access to the Course Management System that lasts for fifteen minutes or longer and occurs within twenty-four hours of an assignment or assessment, the deadline for the assignment or assessment may be extended at the discretion of your instructor.

**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.

The best way to reach your instructor outside of class is by email. Please use your @com.edu email address. Expect that mails from other sources will be filtered from my inbox and you will receive no reply. If you prefer to meet with me in-person or virtually outside my office hours, 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. Replies to voice messages left on my office telephone will take longer for me to reply than an email. Also, I will most likely reply to a voice message by email. So, if you don't mind waiting an extended time for my reply, leaving a voice message is another option.

Student Learner Outcomes	Maps to Core Objectives	Assessed via this Assignment
1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.	CT	Selected Exam Questions
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.	CT CS	Selected Exam Questions Presentation
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.	CT	Selected Exam Questions
4. Identify and balance oxidation-reduction equations and solve redox titration problems.	CT	Selected Exam Questions
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.	CT	Selected Exam Questions
6. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.	EQS	Selected Exam Questions
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.	CT	Selected Exam Questions
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells and determine standard and non-standard cell potentials.	CT	Selected Exam Questions

Student Learner Outcomes	Maps to Core Objectives	Assessed via this Assignment
9. Define nuclear decay processes.	CT	Selected Exam Questions
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry.	CT	Selected Exam Questions
11. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.	TW	Selected Experiment Grades
12. Demonstrate safe and proper handling of laboratory equipment and chemicals.	CT	Selected Experiment Grades
13. Conduct basic laboratory experiments with proper laboratory techniques.	TW	Selected Experiment Grades
14. Make careful and accurate experimental observations.	EQS	Selected Experiment Grades
15. Relate physical observations and measurements to theoretical principles.	EQS	Selected Experiment Grades
16. Interpret laboratory results and experimental data and reach logical conclusions.	CT	Selected Experiment Grades
17. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.	CS	Laboratory Report Grade
18. Design fundamental experiments involving principles of chemistry.	CT	Selected Experiment Grades
19. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.	CT	Selected Experiment Grades
20. 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](mailto:sabernathy@com.edu).

**Course outline:** Use this course outline and tentative class schedule to schedule your course activities for the semester. The following designations are used to indicate time periods and deadlines:

(B) – Blackboard: for activities, assignments and assessments that are completed through Blackboard.

(L) – Lab room (STEAM 346): for activities, assignments and assessments that are completed during the lab period.

(M) – Macmillan Achieve: for activities, assignments and assessments that are completed online through Macmillan Achieve. The standard deadline for activities, assignments, and assessments through Macmillan Achieve is 23:59 (11:59 PM) on Sunday night.

Week	Topic(s)	Reading Assignments	Weekly Deadlines
1 Mon-23-Aug-2021 through Sun-29-Aug-2021	<ul style="list-style-type: none"> <li>• Course Introduction</li> <li>• CH 10 Liquids and Solids</li> <li>• Forum 1</li> </ul>	<ul style="list-style-type: none"> <li>• Read Me First</li> <li>• Syllabus</li> <li>• CH 10</li> </ul>	<b>Fri-27-Aug-2021</b> <ul style="list-style-type: none"> <li>• Course Intro (L)</li> </ul> <b>Sun-29-Aug-2021</b> <ul style="list-style-type: none"> <li>• Orientation Assignment (M)</li> <li>• Practice Assignment (M)</li> <li>• Syllabus Quiz (B)</li> </ul>
2 Mon-30-Aug-2021 through Sun-05-Sep-2021	<ul style="list-style-type: none"> <li>• CH 10 Liquids and Solids</li> <li>• Forum 1</li> <li>• Lab 1 Safety in the Chemistry Lab</li> <li>• Lab 1 SDS Activity</li> <li>• Select Presentation Topic</li> </ul>	<ul style="list-style-type: none"> <li>• CH 10</li> <li>• Lab 1 Procedure</li> <li>• Lab 1 SDS Activity (Forum)</li> <li>• Presentation Topics</li> </ul>	<b>Fri-03-Sep-2021</b> <ul style="list-style-type: none"> <li>• Lab 1 Pre-lab (B)</li> <li>• Lab 1 Procedure (L)</li> <li>• Lab 1 Post-lab (B)</li> <li>• Chemical Equations Training (M)</li> <li>• Course Survey 1 (B)</li> <li>• Forum 1 (B)</li> <li>• Math Review (M)</li> <li>• Presentation Topic Selection (B)</li> </ul>
3 Mon-06-Sep-2021 through Sun-12-Sep-2021	<ul style="list-style-type: none"> <li>• CH 11 Solutions and Colloids</li> <li>• Lab 2 Freezing &amp; Melting of Water</li> </ul>	<ul style="list-style-type: none"> <li>• CH 11</li> <li>• Lab 1: SDS Activity (Forum)</li> <li>• Lab 2 Procedure</li> </ul>	<b>Fri-10-Sep-2021</b> <ul style="list-style-type: none"> <li>• Lab 2 Pre-lab (B)</li> <li>• Lab 2 Procedure (L)</li> <li>• Lab 2 Post-lab (B)</li> </ul> <b>Sun-12-Sep-2021</b> <ul style="list-style-type: none"> <li>• CH 10 Test (M)</li> <li>• Lab 1 SDS Activity (B)</li> </ul>
4 Mon-13-Sep-2021 through Sun-19-Sep-2021	<ul style="list-style-type: none"> <li>• CH 11 Solutions and Colloids</li> <li>• CH 12 Thermodynamics</li> <li>• Lab 3 Conductivity of Solutions</li> </ul>	<ul style="list-style-type: none"> <li>• CH 11</li> <li>• CH 12</li> <li>• Lab 3 Procedure</li> <li>• Presentation Research</li> </ul>	<b>Fri-17-Sep-2021</b> <ul style="list-style-type: none"> <li>• Lab 3 Pre-lab (B)</li> <li>• Lab 3 Procedure (L)</li> <li>• Lab 3 Post-lab (L)</li> </ul> <b>Sun-19-Sep-2021</b> <ul style="list-style-type: none"> <li>• CH 11 Test (M)</li> </ul>

Week	Topic(s)	Reading Assignments	Weekly Deadlines
5 Mon-20-Sep-2021 through Sun-26-Sep-2021	<ul style="list-style-type: none"> <li>• CH 12: Thermodynamics</li> <li>• Lab 4 Law of Hess</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter 12</li> <li>• Lab 4 Procedure</li> <li>• Presentation Research</li> </ul>	<b>Fri-24-Sep-2021</b> <ul style="list-style-type: none"> <li>• Lab 4 Pre-lab (B)</li> <li>• Lab 4 Procedure (L)</li> <li>• Lab 4 Post-lab (B)</li> </ul> <b>Sun-26-Sep-2021</b> <ul style="list-style-type: none"> <li>• CH 12 Test (M)</li> <li>• Lab 3 (B)</li> </ul>
6 Mon-27-Sep-2021 through Sun-03-Oct-2021	<ul style="list-style-type: none"> <li>• Exam 1 (CH 10-12)</li> <li>• CH 13 Fundamental Equilibrium Concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter 13</li> <li>• Presentation Research</li> </ul>	<b>Fri-01-Oct-2021</b> <ul style="list-style-type: none"> <li>• Exam 1 (L 9:30–10:50)</li> </ul> <b>Sun-26-Sep-2021</b> <ul style="list-style-type: none"> <li>• Lab 3 Report (B)</li> </ul>
7 Mon-04-Oct-2021 through Sun-10-Oct-2021	<ul style="list-style-type: none"> <li>• CH 13: Fundamental Equilibrium Concepts</li> <li>• CH 14: Acid-Base Equilibria</li> <li>• Forum 2</li> <li>• Lab 5 Determining an Equilibrium Constant</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter 13</li> <li>• Chapter 14</li> <li>• Lab 5 Procedure</li> <li>• Presentation Research</li> </ul>	<b>Fri-08-Oct-2021</b> <ul style="list-style-type: none"> <li>• Lab 5 Pre-lab (B)</li> <li>• Lab 5 Procedure (L)</li> <li>• Lab 5 Post-lab (L)</li> </ul> <b>Sun-10-Oct-2021</b> <ul style="list-style-type: none"> <li>• CH 13 Test (M)</li> <li>• Forum 2 (B)</li> </ul>
8 Mon-11-Oct-2021 through Sun-17-Oct-2021	<ul style="list-style-type: none"> <li>• CH 14: Acid-Base Equilibria</li> <li>• CH 15: Equilibria of Other Reaction Classes</li> <li>• Course Survey 2</li> <li>• Lab 6 Vinegar Titration</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter 14</li> <li>• Chapter 15</li> <li>• Lab 6 Procedure</li> <li>• Presentation Research</li> </ul>	<b>Fri-15-Oct-2021</b> <ul style="list-style-type: none"> <li>• Lab 6 Pre-lab (B)</li> <li>• Lab 6 Procedure (L)</li> <li>• Lab 6 Post-lab (B)</li> </ul> <b>Sun-17-Oct-2021</b> <ul style="list-style-type: none"> <li>• CH 14 Test (M)</li> <li>• Course Survey 2 (B)</li> </ul>
9 Mon-18-Oct-2021 through Sun-24-Oct-2021	<ul style="list-style-type: none"> <li>• CH 15 Equilibria of Other Reaction Classes</li> <li>• CH 16 Electrochemistry</li> <li>• Course Survey 2</li> <li>• Lab 7 Titrating an Unknown Acid</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter 15</li> <li>• Chapter 16</li> <li>• Lab 7 Procedure</li> <li>• Presentation Research</li> </ul>	<b>Fri-22-Oct-2021</b> <ul style="list-style-type: none"> <li>• Lab 7 Pre-lab (B)</li> <li>• Lab 7 Procedure (L)</li> <li>• Lab 7 Post-lab (B)</li> </ul> <b>Sun-24-Oct-2021</b> <ul style="list-style-type: none"> <li>• CH 15 Test (M)</li> <li>• Lab 5 Report (B)</li> </ul>
10 Mon-25-Oct-2021 through Sun-31-Oct-2021	<ul style="list-style-type: none"> <li>• CH 16 Electrochemistry</li> <li>• Lab 8 Determining the Solubility Constant for Calcium hydroxide</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter 16</li> <li>• Lab 8 Procedure</li> <li>• Presentation Research</li> </ul>	<b>Fri-29-Oct-2021</b> <ul style="list-style-type: none"> <li>• Lab 8 Pre-lab (B)</li> <li>• Lab 8 Procedure (L)</li> <li>• Lab 8 Post-lab (B)</li> </ul> <b>Sun-31-Oct-2021</b> <ul style="list-style-type: none"> <li>• CH 16 Test (M)</li> </ul>
11 Mon-01-Nov-2021 through Sun-07-Nov-2021	<ul style="list-style-type: none"> <li>• Exam 2 (CH 13-16)</li> <li>• CH 17 Kinetics</li> <li>• Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• CH 17</li> <li>• Presentation</li> </ul>	<b>Fri-05-Nov-2021</b> <ul style="list-style-type: none"> <li>• Exam 2 (L 9:30–10:50)</li> </ul> <b>Sun-07-Nov-2021</b> <ul style="list-style-type: none"> <li>• Presentation (B)</li> </ul>



Week	Topic(s)	Reading Assignments	Weekly Deadlines
12 Mon-08-Nov-2021 through Sun-14-Nov-2021	<ul style="list-style-type: none"> <li>• CH 17 Kinetics</li> <li>• CH 20 Nuclear Chemistry</li> <li>• Forum 3</li> <li>• Lab 9 Rate Law Determination</li> </ul>	<ul style="list-style-type: none"> <li>• CH 17</li> <li>• CH 20</li> <li>• Lab 9 Procedure</li> </ul>	<b>Fri-12-Nov-2021</b> <ul style="list-style-type: none"> <li>• Lab 9 Pre-lab (B)</li> <li>• Lab 9 Procedure (L)</li> <li>• Lab 9 Post-lab (B)</li> </ul> <b>Sun-14-Nov-2021</b> <ul style="list-style-type: none"> <li>• CH 17 Test (M)</li> <li>• Forum 3 (B)</li> </ul>
13 Mon-15-Nov-2021 through Sun-21-Nov-2021	<ul style="list-style-type: none"> <li>• CH 20 Nuclear Chemistry</li> <li>• CH 21 Organic Chemistry</li> <li>• Lab 10 Nuclear Reactions &amp; Radioactivity</li> <li>• Lab 11 Structure and Nomenclature of Organic Molecules</li> <li>• Lab 12 Aspirin Synthesis</li> </ul>	<ul style="list-style-type: none"> <li>• CH 20</li> <li>• CH 21</li> <li>• Lab 10 Assignment</li> <li>• Lab 11 Assignment</li> <li>• Lab 12 Procedure</li> </ul>	<b>Fri-19-Nov-2021</b> <ul style="list-style-type: none"> <li>• Lab 12 Pre-lab (B)</li> <li>• Lab 12 Procedure (L)</li> <li>• Lab 12 Post-lab (B)</li> </ul> <b>Sun-21-Nov-2021</b> <ul style="list-style-type: none"> <li>• CH 20 Test (M)</li> <li>• Lab 10 Pre-lab (B)</li> <li>• Lab 10 Procedure (B)</li> <li>• Lab 10 Post-lab (B)</li> <li>• Lab 11 Pre-lab (B)</li> <li>• Lab 11 Procedure (L)</li> <li>• Lab 11 Post-lab (B)</li> </ul>
14 Mon-22-Nov-2021 through Sun-28-Nov-2021	<ul style="list-style-type: none"> <li>• CH 21: Organic Chemistry</li> </ul>	<ul style="list-style-type: none"> <li>• CH 21</li> </ul>	<b>Fri-26-Nov-2021</b> <i>No class, COM Closed</i>
15 Mon-29-Nov-2021 through Sun-05-Dec-2021	<ul style="list-style-type: none"> <li>• CH 21: Organic Chemistry</li> <li>• Course Survey 3</li> <li>• Exam 3 (CH 17, 20, &amp; 21)</li> <li>• Forum 4</li> <li>• Lab Report 9</li> </ul>	<ul style="list-style-type: none"> <li>• Forum 4</li> </ul>	<b>Mon-29-Nov-2021</b> <ul style="list-style-type: none"> <li>• CH 21 Test (M)</li> <li>• Course Survey 3 (B)</li> <li>• Forum 4 (B)</li> <li>• Lab 9 Report (B)</li> </ul> <b>Fri-03-Dec-2021</b> <ul style="list-style-type: none"> <li>• Exam 3 (L 9:30–10:50)</li> </ul>
16 Mon-06-Dec-2021 through Fri-10-Dec-2021	<ul style="list-style-type: none"> <li>• Reviewing Chapters 10-17, 20, &amp; 21 for Final Exam</li> </ul>	<ul style="list-style-type: none"> <li>• Chapters 10-17, 20 &amp; 21</li> </ul>	<b>Tue-07-Dec-2021</b> <ul style="list-style-type: none"> <li>• Final Exam (B)</li> </ul>

## 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](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](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 Holly Bankston at 409-933-8520 or [hbankston@com.edu](mailto:hbankston@com.edu). The Office of Services for Students with Disabilities is located in the Student Success Center.

**Counseling Statement:** Any student needing counseling services is requested to please contact Holly Bankston in the student success center at 409-933-8520 or [hbankston@com.edu](mailto:hbankston@com.edu). Counseling services are available on campus in the student center for free and students can also email [counseling@com.edu](mailto:counseling@com.edu) to set up their appointment. Appointments are strongly encouraged; however, some concerns may be addressed on a walk-in basis.

**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 1<sup>st</sup> 8-week session is October 6. The last date to withdraw from the 16-week session is November 19. The last date to withdraw for the 2<sup>nd</sup> 8-week session is December 2.

**F<sub>N</sub> Grading:** The F<sub>N</sub> grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The F<sub>N</sub> 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 F<sub>N</sub> grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an F<sub>N</sub> 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.

**COVID-19 Statement:** All students, faculty, and staff are expected to familiarize themselves with materials and information contained on the College of the Mainland’s Coronavirus Information site at [www.com.edu/coronavirus](http://www.com.edu/coronavirus). In compliance with Governor Abbott's May 18 Executive Order, face coverings/masks will no longer be required on COM campus. Protocols and college

signage are being updated. We will no longer enforce any COM protocol that requires face coverings. We continue to encourage all members of the COM community to distance when possible, use hygiene measures, and get vaccinated to protect against COVID-19. Please visit [com.edu/coronavirus](http://com.edu/coronavirus) for future updates.

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## Back Matter

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**Revisions:** Your instructor reserves the right to revise this syllabus to accommodate changes in the course that may occur during the semester. If any changes to this syllabus occur during the semester, students will be provided with an announcement of those changes and will be given access to a description of those changes.

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**Acknowledgements:** This syllabus was developed using a template provided by COM. Other parts of this syllabus were derived from the work of my professors and my colleagues. I thank them for their willingness to share their work.