

CHEM 1406 102CL Introductory Chemistry I Fall 2022 Tuesdays and Thursdays from 1:30 – 4:20 PM in STEAM 346

Instructor Information:

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Student hours and location:

Locations and Times: Available via email and Microsoft Teams MTWRF: 11:00 AM to 1:00 PM in STEAM 325-23

Required Textbook/Materials: The textbook and homework system are part of the inclusive access and are available immediately upon access to D2L Brightspace (D2L) at the start of the semester.

Required Textbook: Chemistry for Changing Times (Hill and McCreary)

The textbook is available with the Achieve Macmillan Learning homework system that is required for this course. Additionally, the textbook is also 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 use whichever formats you want. Web view is recommended since the responsive design works seamlessly on any device. PDF versions of the full book as well as individual chapters will be posted in both D2L Brightspace (D2L) and the Achieve Macmillan Learning homework system.

Textbooks and/or courseware is available through VitalSource digitally. Cost of the course materials for this section is \$43.40. The course materials are available on the first day of class and you will be given the opportunity to opt-out of the e-book 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. The materials are not refundable after the census day.

Required Homework System: Achieve Macmillan Learning homework system is an Internet based homework, testing, and content management system. Instructions for creating a Achieve Macmillan Learning homework system account and registering for the course are provided in the Course Information page located in D2L Brightspace (D2L). Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments. During sign up or throughout the term, if you have any technical problems or grading issues, go to Achieve Support to look at support articles or chat with a member of the support team at Achieve

Chat. The Achieve Macmillan Learning support team is almost always faster and better able to resolve issues than your instructor.

Additional Materials: An inexpensive scientific calculator (e.g., TI-30). There are free apps for your mobile devices. However, you will not be able to use smart phone applications on exams.

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
- A COM <u>e-mail account</u> (COM provides free e-mail for students)
- <u>Microsoft Office, Microsoft OneNote, and Microsoft Teams</u> (COM offers free Office 365 access for students)
- <u>Vernier Graphical Analysis</u> (Vernier offers free software for students)
- File conversion software for converting image files to PDF files (<u>Microsoft Office Lens</u>, <u>Adobe Scan</u>, and <u>Genius Scan</u> are free for both Android and iOS)
- A PDF reader like <u>Adobe Reader</u>

Course Description: Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/ physiological chemistry, and environmental/consumer chemistry. Designed for allied health students and for students who are not science majors.

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

<u>Stay Current</u>: 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.

<u>Meet Learning Objectives</u>: You will cover the course material listed in the Student Learning Objectives by accessing information from the textbook, Achieve, the internet, and the library, and from other resources, as needed.

<u>Stay in Communication</u>: 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.

<u>Complete Assessments</u>: Your knowledge of the material covered in the Student Learner Outcomes is assessed using class activities, online homework, exams, and laboratory experiments.

• Chapter Homework

There will be on-line Homework Assignments given during the semester. The Chapter Homework Assignments, designed and administered to promote mastery of the selected Student Learner Outcomes, are given online through Achieve Macmillan Learning. These open book assignments allow you to reference your course materials and Internet resources during the assessment. The assignments are composed of calculation, matching, multiple choice, and true/false questions. 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. Individually each assignment will be worth 25 points. The overall Homework score will be calculated by dropping the lowest assignment score and the total sum of the remaining scores will be scaled to be worth a maximum of 125 points.

• 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, free response and true/false formats. The exact break down of subjects covered on each semester exam will be announced prior to each exam. Typically, the semester exam will encompass three or four chapters. For example, the first semester exam might evaluate students on course content from Chapters 1 through 4. Each exam is worth a maximum of 100 points. No make-up exams will be offered.

• Final Exam

There will be one cumulative exam given at the end of the semester. It covers content from all ten Chapters. The format of Final Exam will be much the same as the semester exams. The questions on these exams may be composed of calculation, matching, multiple choice, short answer, free response, and true/false formats. 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 exam will be scheduled during Finals week at the end of the semester. It is worth a maximum of 150 points.

Laboratory Grade

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. Additionally, students who do not achieve a 70% or higher for the laboratory portion will be given 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. If a student misses their

scheduled lab time for Experiment 1, they will be complete the activity during the second scheduled laboratory session. The student will then earn a 0 for Experiment 2.

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. Successful completion of a laboratory assignment involves the completion and submission of the Pre-lab Assignment and of the Lab Report.

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

- Watch any videos and read any additional resources provided for background.
- Read the lab procedure.
- Answer questions concerning concepts and procedures from the lab experiment.
- Submit the completed assignment before starting the experiment.

Lab Reports are assignments comprised of the Lab Procedures and the Post-lab Assignments.

<u>Lab Procedures</u> 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.

<u>*Post-lab Assignments*</u> 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.

The *Laboratory 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.

Each Lab Assignment will be worth a maximum of 100 points as determined from the sum of the points for the pre-lab assignment and the lab report. The Laboratory Score is calculated as the simple average of the lab report scores that remain after dropping the lowest score scaled to 200 points.

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 sum of the points earned in each grading categories. Your final grade is then calculated as a percentage of points earned vs the total possible points.

Class Activities & Participation

- Class activities are worth a maximum of 20 points.
- The lowest score will be dropped.
- The percentage of the remaining scores will be calculated. [(Total points earned) / (Total points possible)] x 100
- The percentage is then scaled to 125 points.

Chapter Homework Assignments

- Each assignment is worth a maximum of 25 points.
- The lowest homework assignment will be dropped.
- The percentage of the remaining scores will be calculated. [(Total points earned) / (Total points possible)] x 100
- The percentage is then scaled to 125 points.

Semester Exams

- Each exam is worth a maximum of 100 points.
- IF the percentage on the Final Exam is higher than the lowest semester exam, the lowest semester exam grade will be replaced with the percentage earned on the final exam.

	Exam #1	Exam #2	Exam#3	Final Exam %	Total (300)
Case I	82	80	91	75 (lowest)	= 82 + 80 + 91 = 253
Case II	89	76	45 (lowest)	78	= 89 + 76 + 78 = 243
Case III	67	0 (lowest)	72	79	= 67 + 72 + 79 = 218

• The semester exam portion is worth a possible total of 300 points.

Final Exam Grade

• The Final Exam is worth a maximum of 150 points.

Lab Grade

- Each lab assignment is worth a maximum of 100 points.
- Lab assignment score is the sum of the pre-lab assignment and the lab report.
- The lowest lab assignment score will be dropped.
- The percentage of the remaining scores will be calculated. [(Total points earned) / (Total points possible)] x 100
- The percentage is then scaled to 200 points.

Category	Possible Points	Percentage
Class Activities & Participation	125	13.9%
Chapter Homework	125	13.9%
Semester Exams	300	33.3%
Final Exam Grade	150	16.6%
Lab Grade (See the Lab Science Policy)	200	22.2%
Total	900	100%

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

FN — An FN 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.

Lab Science Policy:

The grade for this course consists of both a lecture and laboratory component. Students must meet two criteria in the laboratory component to successfully pass the course:

Letter Grade	Final Average
А	89.5 - 100
В	79.5 - 89.4
С	69.5 - 79.4
D	59.5 - 69.4
F	< 59.5

- 1. 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.
- 2. 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 in an F for the course regardless of the lecture grade.

Deviations from this policy will be at the discretion of the instructor.

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

This course is designed to accommodate some of life's mishaps, difficulties, or tragedies by providing extended deadlines for NYTI, homework and lab assignments. Semester exams, the course evaluation through CoursEval and the Final Exam are exceptions. After the initial 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 removed. Expect that no additional time will be provided.

The class activities and lab assignments have a 48-hour extension beyond the due date with a loss of 5% per day. After the extended deadline has passed those assignments and assessments are closed.

The homework assignments have an extended deadline of seven days with a loss of 5% per day. After the extended deadline has passed, expect that the assignment will be 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 after the difficulty has passed.

Attendance Policy:

All students registered in this class are expected to attend all face-to-face sessions. This policy follows the attendance policies prescribed in the current College Catalog. (http://coursecatalog.com.edu).

Students must earn a 70% or better in the laboratory component to successfully pass the course. Additionally, students must successfully attend and complete 70% or more of all laboratory assignments to successfully pass the course.

Failing to attend class, log into D2L Brightspace and Achieve Macmillan Learning, 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 D2L Brightspace or Achieve Macmillan Learning 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 D2L Brightspace for a one-week period, failure to submit four or more assignments by the deadlines for those assignments, failure to attend and 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. Another scenario is a student that is attending (completing) less than 70% of the lab sessions. Since they have 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.

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 D2L Brightspace 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, which are made on weekdays, within twenty-four hours. Expect that I will be unavailable on weekends. Please include your course and section number in the subject line. 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.

Stu	udent Learner Outcome	Maps to Core Objective	Assessment(s)
1.	Identify and express the terminology used in	Communication	Class Activities
	chemistry, the nomenclature of inorganic and	Skills	
	selected organic substances, and the physical and		
	chemical properties of inorganic and selected	Critical Thinking	Selected Test or
	organic substances.		Exam Questions
2.	Recognize the fundamental facts, principles,		Selected Test or
	theories, laws, and concepts necessary for further	Critical Thinking	Exam Questions
	studies in science and related subjects.		Exam Questions
3.	Categorize the structure, states, and physical and	Critical Thinking	Selected Test or
	chemical properties of matter.		Exam Questions
4.	Solve basic chemistry problems, conversions,	Empirical and	Selected Test or
	and calculations	Quantitative Skills	Exam Questions

5. Demonstrate proper safety techniques and locate needed safety information.	Critical Thinking	Experiment 1 Grade Lab Average
6. Perform laboratory procedures by working cooperatively with classmates in a lab group to properly manipulate the laboratory equipment, to properly handle chemicals, to clearly record data, to perform needed calculations, and to submit completed work by the assigned deadline.	Team work	Lab Average

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.

<u>Tentative</u> Course outline: Use this course outline and tentative class schedule to schedule your course activities for the semester. Weekly schedules of assignments and due dates will be posted on D2L Brightspace throughout the semester.

Week	Topics	Reading Assignments
	Course Introduction	• Syllabus
	Achieve MacMillan Learning	Achieve Access Directions
1	• Chapter 1	• Chapter 1
	Chemistry Safety Discussion	• Experiment 1
	• Lab 1: Safety in the Chemistry Lab	
2	• CH 1 Chemistry	• CH 1 & 2
	• CH 2 Atoms	• Experiment 2
	• Lab 2: Weight & Volume	
	• CH 2 Atoms	• CH 2
3	• CH 3 Atomic Structure	
4	• CH 3 Atomic Structure	• CH 3
	• Lab 3: Density & Graphing	• Experiment 3
5	CH 3 Atomic Structure	• CH 3 & 4

	CH 4 Chemical Bonds	• Experiment 4
	• Lab 4: Ternary Mixture	
	• Exam 1 (CH 1-3) – during lab	• CH 1 – 3
	• CH 4 Chemical Bonds	• CH 4 & CH 6.1 – 6.4
6	• CH 6 $(6.1 - 6.4)$ Gases, Liquids, Solids, and	• Experiment 5
	Intermolecular Forces	
	• Lab 5: Periodic Table and Electron Configuration	
	• CH 6 $(6.1 - 6.4)$ Gases, Liquids, Solids, and	• CH 6.1 – 6.4
7	Intermolecular Forces	• Experiment 6
	Lab 6: Spectroscopy / Spectral Lines	
	• CH 5 Chemical Accounting	• CH 5
8	• Lab 7: Lewis Structures and The Shapes of	• Experiment 7
0	Molecules	
	CH5 Chemical Accounting	• CH 5 & 6.5 – 6.7
	• CH 6.5 – 6.7 Gases, Liquids, Solids, and	• Experiment 8
9	Intermolecular Forces	
	• Lab 8: Investigation of Intermolecular Forces	
	• Exam 2 (CH 4, CH 6.1 – 6.4), CH 5) – during lab	• CH 4, CH 6.1 – 6.4, CH 5
10	• CH 6.5 – 6.7: Gases, Liquids, Solids, and	• CH 6.5 – 6.7 & CH 7
10	Intermolecular Forces	• Experiment 9
	Lab 9: Types of Chemical Reactions	
11	• CH 7 Acids & Bases	• CH 7
	• Lab 10: Stoichiometry	• Experiment 10
	• CH 7 Acid and Base	• CH 7 & 8
12	• CH 8 Oxidation and Reduction	• Experiment 11
	• Lab 11: Gas Laws	
13	• CH 8 Oxidation and Reduction	• CH 8 & 9
	• CH 9 Organic Chemistry	• Experiment 12
15	• Lab 12: Acidity and Alkalinity of Household	
	Chemicals	
14	• CH 9 Organic Chemistry	• CH 9 & 10
	• CH 10 Polymers	• Experiment 13
	• Lab 13: Concepts of Strength and Concentration	
15	• Exam 3 (CH 6.5 – 6.7, 7, 8, 9 & 10) – during lab	• CH 6.5 – 6.7, 7, 8, 9 & 10
15	• Lab 14: Synthesis and Identification of Esters	
16	• FINAL EXAM	•

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.<<u>https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf</u>. *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 <u>mvaldes1@com.edu</u>. 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 <u>https://www.com.edu/community-resource-center/</u>. 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 <u>deanofstudents@com.edu</u> or <u>communityresources@com.edu</u>.