SYLLABUS

CHEM 1405

INTRODUCTORY CHEMISTRY-I

(SECTION 101CL)

Prepared by
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COLLEGE OF THE MAINLAND
TEXAS CITY, TEXAS-77591

Spring 2023

Course Title, Course number & Course Section

CHEM 1405.101CL

Name of Course
Introductory Chemistry-1

Course Semester
Spring 2023

Time and Days of the Course
1:30-4:20 PM Tuesdays and Thursdays. **Room 334 STEAM Building on Tuesdays and Room 346 on Thursdays.**

Instructor Information:
Name: John Valdes, M.S., Professor of Chemistry,
Email: jvaldes@com.edu;
Phone: 409-933-8244
Office Hours: Tuesdays and Thursdays 4:20-4:50 PM
Location: Room 334 STEAM Building on Tuesdays and Room 346 on Thursdays.

Communicating with your instructor: ALL electronic communication with The instructor must be through 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).

Required Textbook: Online Textbook "Chemistry for Changing Times" (Hill and McCreary). The link to this book is:http://chem.libretexts.org. This ebook is offered at no extra cost to the students. In order to open the ebook for this class, follow the instructions below:

1. Go to the website: http://chem.libretexts.org
2. Open the tab titled: "Bookshelves".
3. Click on "Introductory, Conceptual, and GOB Chemistry"
4. Scroll down and click on "Chemistry for Changing Times (Hill and McGregory")
5. Open and you will see all the chapters in order of study.

Course Description
This course is an introduction to the language, techniques, methods and principles of chemistry primarily for chemical and refinery plant operators and technicians. Topics include measurements and conversion, basic atomic structure and periodic trends, basic molecular structure, inorganic and organic nomenclature, and organic functional groups. The states of matter, behavior of solids, liquids and gases, and the properties of solutions

and solubility are addressed, especially as they relate to organic functional groups and molecular structure. The chemical properties of selected functional groups are described in the context of elementary stoichiometry, kinetics, equilibrium, acidity and alkalinity, and oxidation/reduction.

Course Requirements

During the semester student performance will be evaluated based on the semester exams, the cumulative final exam, Sapling homework, Laboratory experiments and Lab reports, class participation, etc. You are required to purchase the scantrons for answering multiple choice portions in the exams and quizzes.

Each major examination will be announced prior to its scheduled administration, especially if any change is anticipated from the published class schedule. It is the student's responsibility to be aware of the time examinations are given if they are absent from class when the announcements are made.

NOTE: No examination may be taken more than once. Retake examinations will not be administered. There will be four exams, a final exam, and a small Laboratory test administered at the end of the semester. In addition, a Chemical Elements exam will be given at the beginning of the semester. This exam is worth 50 points.

Details given below:

1. Chapter Exams

Four exams, three chapters each, one exam for 2 chapters, plus the final exam. If a student, without a valid, verifiable reason does not take one of the Chapter exams, a grade of zero may be recorded. You are allowed to make-up one of the missed chapter exams during the next scheduled class day, therefore maybe missing the lab session with no points scored for that lab. **These exams are in addition to the Chemical Elements exam (50 points), which is given the second week from the beginning of the course. Each of these exams are worth 100 points. If a student fails to take the exam on the day scheduled, 10 points will be taken for every day after the test day is scheduled.**

2. Final Exam

The final exam is worth 100 points. **It is a mandatory exam.** The final exam will be a cumulative exam encompassing the material for the entire semester. Failure to take the final exam represents unsatisfactory progress and failure to complete the course. This will result in a course grade of "F".

3. Laboratory Grade

Laboratory sessions are a required portion of this course and allow you to practice skills and make observations of the concepts studied during class sessions. Your lab performance will be a part of your final grade. In order to fulfill all requirements you must attend laboratory sessions and demonstrate your ability to physically manipulate equipment and make detailed observations. Also, you must ***safely*** perform all lab experiments and clean up your lab station. Certain rules of conduct must be followed to minimize the possibility of your harming yourself or your fellow students. (Carelessness, horseplay, or destructiveness will result in your instructor dropping you from this course

immediately). A laboratory test will be given at the end of the semester that includes details of labs that have been performed during the semester**. Again, all students within a group must leave together when finished, so to not leave his/her other lab partners to clean up or pick up afterward by themselves. Attendance and evaluation of the student will be graded by the instructor during the lab(s) section .**

A Pre-Lab talk covering specific instructions, procedures and safety features for some laboratory session will be given to you before you enter the laboratory. It is **mandatory** to attend this session before you perform a Laboratory experiment. The data that you obtain during the course of each experiment must be recorded on a DATA SHEET and later transfer to the appropriate place in your laboratory All questions and problems following each experiment are to be completed, unless the instructor directs otherwise. The recording of data and solutions/answers to problems/questions are to be neatly written and legible. Failure to record data in this manner will result in a grade penalty. A pre-laboratory quiz may be given to assess the student's familiarity with the experiment. It will be worth half the lab points (5 points, one point each question). If given, those points will be part of the 10 points for the lab on that day.

The cumulative laboratory grade is used toward the total grade points, not including 30 points for the laboratory test. Each laboratory will be worth 10 points.

At his discretion, the instructor may give a short "pre-lab" quiz before any laboratory to see if the student has read the lab in advance to become familiarized with the work for that day. If the student cannot answer the simple questions about that day's lab, 5 points will be deducted from the lab score. Since the procedure for the day's lab will be explained by the instructor, redundant questions once in the lab by the student on how to calculate a question, or a "how do I do this" will result in points taken off from the instructor's evaluation.

Students must earn a 70% or better attendance in the laboratory component to successfully pass the course (must attend at least 9 out of the 13 labs). 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.

Again, each student must successfully attend and complete 70% or more of all laboratory assignment 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.

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

4. Online -HomeWork : Achieve Learning

Completing assigned homework problems for the maximum of six chapters is worth 80 points (10 points for each chapter). Online homework is part of the Sapling Learning system. The homework assignment for a chapter has to be completed online. **Homework**

for all chapters is due the Saturday after the test for chapters 8 and 9 at 11:59 PM.

The Achieve homework for **all** chapters will be open throughout the semester for student review and/or practice. However, the first eight chapters are the only ones that will be graded. On Achieve, you will see the last day of class as the due date of all homework. This means that you can review the chapters on your own until the last day of class. **Again, as it is detailed above, all the homework for the 8 chapters is due on the Saturday after the test on chapters 8 and 9 is taken.**

Determination of Course Grade

14. Grading Scale

Your semester grade will be based on the semester exams, the final exam, Achieve, class participation/instructor evaluation, laboratory grade, attendance, and Chemical Elements test.

There are total of **820** points possible:

Chemical Elements		= 50
Semester Exams:	4 @100	= 400
Final Exam		= 100
Achieve Home Work		= 80
Laboratory grade (total = 13)		= 130
Lab test		= 30
Attendance		= 30

You must have the following course averages to receive the grades:

Points	Average	Grade
738 – 820	90-100%	A
656 – 737	80-89%	B
574 – 655	70-79%	C
492 – 573	60-69%	D
0 – 491	0-59%	F

Course Outline

TENTATIVE CLASS/LAB SCHEDULE SPRING SEMESTER 2023

(The instructor reserves the right to modify/ change labs, dates, chapters, etc.)

Week 1

Tues 1/17		**Chapter 1. Safety Video. Orientation. Handouts, Common laboratory glassware in lab. Start Unit 1.**
Thurs 1/19	**Exp. 1:**	**Chemical Lab Safety. Unit 1.**

Week 2

Tues 1/24 — **Unit 1**

Thurs 1/26 — **TEST ON CHEMICAL ELEMENTS.**
Exp. 2: Making Measurements.
Review for test Unit 1.

Week 3

Tues 1/31 — **TEST UNIT 1.**

Thurs 2/2 — **Exp. 3: Relating Mass and Volume**

Week 4

Tues 2/7 — **Chapter 2**

Thurs 2/9 — **Exp. 4: Exothermic-Endothermic Reactions.**
Chapter 2.

Week 5

Tues 2/14 — **Chapter 3.**

Thurs 2/16 — **Exp. 5: Separating a Ternary Mixture (CaCO3).**

Week 6

Tues 2/21 — **Chapter 3. Start Chapter 4.**

Thurs 2/21 — **Exp. 6: Periodic Table Lab.**
Chapter 4.

Week 7

Tues 2/28 — **Finish Chapter 4. Start Chapter 5.**

Thurs 3/2 — **Exp. 7: Boyle's Law. Chapter 5.**
Review for test chapters 2, 3, 4.

Week 8

Tues 3/7 — **TEST CHAPTERS 2, 3, 4.**

Thurs 3/9 — **Exp. 8: P-T Law.**
Chapter 5. Chapter 5 (Cont.).

Tues 3/14-19 — **SPRING BREAK. NO CLASSES.**

Week 9

Tues 3/21 — **Finish chapter 5 (cont.)**
Chapter 6.

Thurs 3/23 — **Exp. 9: Stoichiometry Lab (Handout)**
Chapter 7.

Week 10

Tues 3/28	**Chapter 7. Start Chapter 8?.** **Review for test chapters 5, 6, 7**
Thurs 3/30	**TEST CHAPTERS 5, 6, 7.**

Week 11

Tues 4/4	**Chapter 8**
Thurs 4/6	**Exp. 10: pH of Household Items** **Chapter 9**

Week 12

Tues 4/11	**Chapter 9.**
Thurs 4/13	**Exp. 11: Titrating Vinegar** **Review for test chapters 8, 9.**

Week 13

Tues 4/18	**TEST CHAPTERS 8, 9.**
Thurs 4/20	**Exp. 12: Monoprotic Acid-Base Titration**

Week 14

Tues 4/25	**Chapter 9 (Cont. II & III).**
Thurs 4/27	**Exp. 13: Fusion of Ice lab.**

Week 15

Tues 5/2	**Finish Chapter 9 (IV).**
Thurs 5/4	**LAB TEST. Review for Final exam** **Review for final exam**

Week 16

Tues 5/9	**FINAL EXAM**
Thurs 5/11	**EXTRA DAY IF NEEDED.**

Course Policies and Guidelines

Attendance

Students are expected to attend each lecture and laboratory session for which they are registered. **IF YOU MISS MORE THAN FIVE CLASSES, YOU MAY RECEIVE A FAILING GRADE FOR THE COURSE, UNLESS YOU HAVE A VERY VALID**

EXCUSE FOR MISSING CLASS. NOT GOING TO CLASS LECTURE AND GOING ONLY TO THE LAB SESSION WILL STILL BE CONSIDERED AS BEING ABSENT.

Tardiness Policy

Students who arrive late or leave early will be considered tardy i.e., not in full attendance. Keep in mind that students who are tardy (more than 15 minutes late) create distractions or disruptions of the learning process and everything must be done to avoid being late or leaving early. **More than 15 minutes late will be considered as absent.** Students who are tardy on exam days will be given the exam but must turn it in when the students who were on time have completed their exams.

Attendance sign-out sheets may be available at the end of each lab period. Students who leave early will not be allowed to sign the attendance sheet. Some of the Laboratory experiments are short and may not require all of the scheduled time. During such days students are expected to work on interpreting the Lab results, or work on assignments or study materials related to the lecture class. **Students must not leave before his/her lab partners do. Doing so will result on student who left before time getting a 0 (zero) for that lab.**

Late work

Laboratory reports submitted after the due time will be deducted 5 points. Any part of the laboratory reports submitted later than the above-mentioned period will not be accepted.

Make-up work

If an exam is missed, it will be allowed to be taken as soon as possible, but not later than the next scheduled chemistry 1405 class. Such test may be taken during the regular hours of chemistry 1405 class period at a designated area in the building. If the same student misses another scheduled test, **30 percent of the grade will be deducted from his/her actual grade.**

Concerns/Questions Statement

If the student has any questions or concerns about any aspect of this course, please contact using the contact information previously given. If, after discussing the concern with me you continue to have questions, please contact Sheena Abernathy, Head of the Science Dept. at (409) 933-8330.

COM Policies

Withdrawal

If a student fails to attend class and demonstrates poor progress toward the course objectives, the instructor may suggest that the student consider withdrawing from the course. It is the student's responsibility to withdraw from the course and file the appropriate "drop form" with the Registrar's Office. If you stop attending class and fail to withdraw from the course, you will receive a grade of "F" in the course.

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_2022-2023_v4.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.

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 Kimberly Lachney at 409-933-88919 or klachney@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 March 1st. The last date to withdraw from the 16-week session is April 24. The last date to withdraw from the 2nd. 8-week session is May 3rd.

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.

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. http://www.com.edu/student-services/student-handbook.php . Students should act in a professional manner at all times. Disruptive students will be held accountable according to college policy. Any violations of the Code of Conduct will result in a referral to the Office for student Conduct and may result in dismissal from this class. If you are in any way disruptive in class, I will document it and let you know privately. At the third time I have to call you in, you will be dropped from the course. Cell phones are not allowed on the desk or at any physical part of the student body, except in his/her pocket or backpack. If a student needs to use the phone during class, he or she must step outside to use it. Note will be taken of the times the student does this. After the fourth time during the semester, the student will be considered absent from class for the day when the student commits the 4th. transgression of telephone usage.

The use of electronic smoking devices is prohibited in class, as well as on Campus proper.

Academic Dishonesty

Any incident of academic policy will be dealt with in accordance with college policy and the Student Handbook. Academic dishonesty – such as cheating on exams is an extremely serious offense and will result in a **grade of zero** on that exam and the student will be referred to the Office of Student Conduct for the appropriate discipline action. For that purpose, cell phones **are not** allowed to be used as a calculator. In addition, cell phones are not allowed to be out during class. If you have a cell phone on and out, you will be subject to the same "three strikes" rules detailed in the previous paragraph.

Plagiarism

Plagiarism is using someone else's words or ideas and claiming them as your own. Plagiarism is a very serious offense. Plagiarism includes paraphrasing someone else's words without giving proper citation, copying directly from a website and pasting it into your paper, using someone else's words without quotation marks. When in doubt – cite!! Any assignment containing any plagiarized material will receive a **grade of zero** and the student will be referred to the Office of Student Conduct for the appropriate discipline action.

Link to resources about avoiding plagiarism:

Please use the information provided in the following links to avoid plagiarism.
http://en.writecheck.com/ways-to-avoid-plagiarism/
http://www.plagiarism.org/plagiarism-101/prevention/
http://isites.harvard.edu/icb/icb.do?keyword=k70847&tabgroupid=icb.tabgroup106849
https://owl.english.purdue.edu/owl/resource/589/01/
https://writing.wisc.edu/Handbook/QPA_plagiarism.html

Concerns/Questions Statement:

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 Sheena Abernathy, Science and Engineering Dept. Chair at (409) 933-8330.

Student Learner Outcomes

Upon the successful completion of the course, the students will be able to:

1. develop a sound foundation in the vocabulary of chemistry, the nomenclature of Inorganic and selected organic substances, and the physical and chemical properties of inorganic and selected organic substances.
2. understand the fundamental facts, principled, theories, laws, and concepts necessary for further studies in science and related subjects.
3. categorize the structure, states, and physical and chemical properties of matter.
4. identify and solve basic chemistry problems, conversions and calculations.
5. use proper safety techniques and locate needed safety information.
6. follow laboratory procedures, correctly manipulate laboratory equipment, properly handle chemicals, and prepare and submit properly recorded data and laboratory questions.
7. develop the ability to work cooperatively with classmates.

General Core Objectives

Students successfully completing this course will demonstrate competency in the following Core Objectives:

1. **Critical Thinking Skills**: to include creative thinking, innovation, inquiry, analysis, evaluation and synthesis of information;
2. **Communication Skills**: to include effective development, interpretation and expression of ideas through written, oral and visual communication;
3. **Empirical and Quantitative Skills**: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
4. **Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Table Mapping SLOs' Core Objectives and Assignments

Student Learner Outcomes	Maps to Core Objectives	Assesses via this assignment
1. Develop a sound foundation in the vocabulary of chemistry, the nomenclature of inorganic and selected organic substances, and the physical and chemical properties and selected organic substances 2. Understand the fundamental facts, principles, theories, laws, and concepts necessary for further studies in science and related subjects 3. Categorize the structure, state, and physical and chemical properties of matter. 4. Follow laboratory procedures, correctly manipulate laboratory equipment, properly handle chemicals, use proper safety techniques, locate needed safety information 5. prepare and submit properly recorded data and laboratory questions	Critical Thinking (CT) Empirical and Quantitative Skills (EQS)	1. Final Exam –selected questions 2, 3.Final Exam – selected questions 4, 5. Laboratory Evaluation
6. Identify and solve basic chemistry problems, conversions, and calculations.	Critical Thinking (CT) Empirical and Quantitative Skills (EQS)	Final Exam –selected questions
7. Develop the ability to work cooperatively with classmates.	Team Work (TW) Communication Skills-written (CS)	Lab Procedure grade Laboratory evaluation Grade (CS)

Description of Assignments Used to Assess the Core Objectives:

Critical Thinking Skills will be assessed using selected questions from the final examination.

These assessments require students to

- To demonstrate their knowledge in their understanding of energy and measurements, and the basic understanding of important chemical concepts (SLO #1) such as the atoms and chemical reactions, density and specific gravity, and chemical calculations (SLO #2) and implications of pressure, volume, temperature changes in organic and inorganic materials.
  Example question: Explain the reason why 1g of cotton is of low density compared to 1g of iron?

Empirical and Quantitative Skills will be assessed using selected questions from the final examination.

These assessments require students to

- Understand the basic calculations (SLO#1) leading to the interpretation of theoretical principles and chemical concepts (SLO #2)
  Example question: Calculate the pH of an alkaline solution of with a

$[OH^-]$ of 1.0×10^{-1}M?

Communication skills will be assessed using will be assessed using an assignment that requires students to:

- Record accurately the laboratory procedure on a laboratory note book (written skills) (SLO #3)

Team Work Skills will be assessed using grades on selected laboratory experiments. These assignments require students to:

- Work together in the laboratory as a team to apply the basic methodologies explained in the laboratory Manuel in handling the laboratory apparatus (SLO# 3), and to jointly conduct the experiments. The successful completion indicates full cooperation between team members.
  Example question: Experiments – Separating the components of a Ternary mixture, evaporation and intermolecular attraction, distillation.

These assignments require students to work together in the laboratory as a team to apply the basic methodologies explained in the laboratory Manual in handling the laboratory apparatus (SLO #7), and to jointly conduct the experiments.
The successful completion indicates full cooperation between team members.
Example question: Experiment- Separating the Components of a Ternary Mixture, Evaporation and intermolecular attractions, Distillation, etc.

The Speaking, Reading and Writing Center provides free tutoring services to students, staff, and faculty seeking assistance for writing, reading and oral presentations for academic and non-academic assignments/projects. Located in the Technical Vocational Building, Room 1306, the center provides fact-to-face and online tutoring sessions in a welcoming environment. Appointments can be made in person, or on the center scheduler at com.mywconline.com, or by clicking the SRWC icon on the COM website.

PS: <u>Any portion</u> of the Syllabus may be modified or upgraded by the instructor. The students will be informed of any changes/updates to this syllabus. The most updated copy will be made available on D2L or by email.