Chemistry 1405.102CL

Introductory Chemistry-I

Course Semester (Summer II 2022)

Monday-Friday 08:00 - 11:40 am

Prepared by

John Valdés, M.S.

Professor of Chemistry

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409-933-8244

COLLEGE OF THE MAINLAND

TEXAS CITY, TEXAS-77591

Instructor Information

Name: John Valdés, M.S., Professor of Chemistry

Email: jvaldes@com.edu;

Phone: 409-933-8244

Student hours & location:

The class will meet Monday-Friday from 08:00 AM to 11:40 AM in Room 346. Room346 is located on the third floor of the new STEAM building.

Starting date: 7/11/2022

End of course: 8/12/2022

Office hours: Mondays and Fridays 11:40 AM - 12:10 PM

Textbook: Online Textbook "Chemistry for Changing Times" (Hill and McCreary). The link to this book is: http://chem.libretests.org/go/page/152132. This ebook is offered at no extra cost to the students.

INSTRUCTIONS TO LOGIN TO ACHIEVE HOMEWORD SITE

The website for student help is: https://macmillan.force.com/macmillanlearning/s/

Or, if you do not have access to a computer, you can call: 1 (800) 936-6899.

To access the homework, the only thing the student has to do is to go to Blackboard and look on the left side of the screen, where all the sections are, and you will see an entry called "Achieve access" or something similar. Click on it, and the homework will be displayed by chapter.

If you are experiencing any trouble while registering, you can reach out to our student support team by filling out the form below:
https://macmillan.force.com/macmillanlearning/s/contactsupport

Need Help? Again, our technical support team can be reached by phone, chat, or by email via the Student Support Community. To contact support, please open a service request by filling out the webform: **https://macmillan.force.com/macmillanlearning/s/contactsupport**

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

Required Homework Materials

Students are required to buy the access to the online "MacmillanLearning" in order to complete the homework. It is my understanding that all students enrolled in 1405 have automatically purchased "Macmillanearning" on-line homework access, which is included with the tuition payment.

Determination of Course Grade

During the semester student performance will be evaluated based on the semester exams, the cumulative final exam, Sapling homework, Laboratory experiments, & Lab reports, class participation, etc. The student will be supplied with 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/date that examinations are given even if they are absent from class when the announcements are made, since it will be announced by email as well .**

NOTE: No examination may be taken more than once. Retake examinations will not be administered. There will be three exams, a final exam, and a small Laboratory Test administered at the end of the semester. We might also give a test/quiz on the Periodic Table identification of the elements.

Details given below:

1. Chapter Exams

Four exams, three chapters each, except the last one which will be 2 chapters. 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 may be missing the lab session with no points scored for that lab. **Each of these chapter exams are worth 100 points. You need to have a TI-30 x IIS calculator, which will/can be furnished to you for the tests. PHONES ARE NOT ALLOWED TO BE USED AS CALCULATORS.**

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 may 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 after each session**. 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. Again, it is also mandatory that all students clean and disinfect the areas where they are going to work**

BEFORE and AFTER he/she starts and finishes work. Washing of hands before, during, and after the lab is finished is highly recommended.

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. Again, 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.

4. Online Home Work : Achieve

Completing assigned homework problems for the maximum of eight 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. **Home work 1-8 is due the Saturday after the test for chapters 8, 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, 9 is taken.**

14. Grading Scale

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

There are total of **790** points possible:

Semester Exams:	4 @100 pts. each.	= 400 (50.6 % of total points)
Test on Elements	1@50 pts. each	= 50 (6.3 % of total points)
Final Exam		= 100 (12.7 % of total points)
Achieve Home Work		= 80 (10.1 % of total points)
Laboratory grade (total = 10)		= 100 (12.7 % of total points)
Lab test		= 30 (3.8 % of total points)
Attendance		= 30 (3.8 % of total points)

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

Points	Average	Grade
711 – 790	90-100%	A
632 – 710	80-89%	B
553 – 631	70-79%	C
474– 552	60-69%	D
0 – 473	0-59%	F

TENTATIVE CLASS AND LAB SCHEDULE FOR SUMMER SESSION 2022

Week 1

Mon. July11	**Orientation. Course handouts, including Chemical Elements handout. Common Laboratory Glassware. Video: "Safety". Start Unit 1.**
Tues. July 12	**Unit 1: Chapter 1.**
	Exp. 1: Safety in the Chemical Laboratory.
Wed. July 13	**Unit 1. Start chapter 2.**
Thurs. July 14	**TEST ON THE ELEMENTS**
	Exp. 2: Measurements.

	Review for test UNIT 1
Fri July 15	**Test Unit 1**
Week 2	
Mon. July 18	**Chapter 2. Start chapter 3.**
Tues. July 19	**Chapter 3.**
	Exp. 3: Relating Mass and Volume.
Wed. July 20	**Chapter 4. Review for test.**
Thurs. July 21	Chapter 5.
	Exp. 4: Exothermic and Endothermic Reactions
Fri. July 22	**TEST CHAPTERS 2, 3, 4**
Week 3	
Mon. July 25	**Chapter 5. Start chapter 6.**
Tues. July 26	**Chapter 6.**
	Exp. 5: Dry Lab: Periodic Table
Wed. July 27	**Chapter 7**
Thurs. July 28	**Chapter 7. Review for test.**
	Exp. 6: Boyle's Law
Fri. July 29	**Test chapters 5, 6, 7**
Week 4	
Mon. August 1	**Chapter 8.**
Tues. August 2	**Chapter 8. Start chapter 9**
	Exp. 7: P-T Law
Wed. August 3	**Chapter 9**
Thurs. August 4	**Chapters 8, 9 (alkanes)**
	Exp. 8: pH of Household Items
Friday August 5	**Test Chapters 8, 9**

LAST DAY TO WITHDRAW (W DAY) IS AUGUST 5TH,

Week 5

Mon. August 8	**Chapters 9 (cont.) Alkenes and Alkynes**
Tues. August 9	**Chapter 9 III and IV (Functional Groups + Benzene)**
	Exp. 9: Ions: The Effect of Concentration
Wed. August 10	**Exp. 10: Titrating Vinegar . Review for Final**
Thurs. August 11	**FINAL EXAMINATION (COMPREHENSIVE)**
Friday August 12	**If necessary**

Fail Lab = Fail Class Syllabus Statement

The grade for this course consists of both a lecture and laboratory 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, however.

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

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 create distractions or disruptions of the learning process and everything must be done to avoid being late or leaving early. 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 will be available at the end of each lab period. The attendance sheet for the labs will be kept by the instructor and fill it out accordingly . Some of the Laboratory experiments are shorter, and may not require all 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 are required to be in the Laboratory during the scheduled time**, and 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 on the due date to the end of the last scheduled class day of the week 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, during the same week. For each day after the scheduled test date that the student is late in taking the test, 10 points will be taken from the total number of points achieved by the student. Each case will be taken on an individual case, considering the perceived attitude and performance of the student. Such test may be taken during the regular hours of chemistry 1405 class period at a designated area in the building.

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 THIRTY PERCENT OF THE LABS, YOU WILL BE WITH-DRAWN FROM THE COURSE. YOU WILL RECEIVE A FAILING GRADE.**

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.

Student Learner Outcome

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 x 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 or by clicking the SRWC icon on the COM website.

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.

Student 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 Department of Science at (409) 933-833

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. Direction for filing an appeal can be found in the student handbook.
https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020y5.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_2019-2020y5.pdf

Academic Success & Support Services: College of the Mainland is committed to providing students the necessary support and tools for success in their college career. 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 Brankston, Office of Services for Students with Disabilities, at hbrankston@com.edu at 409-933-8520. The Office of Services for Students with Disabilities is located in the Student Success Center.

http://www.com.edu/student-services/counseling.php

Counseling Statement: Any student that is needing counseling services is requested to please contact Holly Bankston at 409-933-8520 or hbankson@com.edu. Counseling services are available on campus in the Student Center for free and students can also email counseling@com.edu. The Office of Services for Students with Disabilities is located in the Student Success Center. Appointments are strongly encouraged; however some concerns may be addressed on a walk-in- basis.

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

Withdrawal Policy

If a student fails to attend class or 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.

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 only permitted to withdraw six times during their college career by State Law. The last day to withdraw for the 5 week course is August 5th.

FN Grading:

The FN grading 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 fail 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.

Early Alert Program

The Student Success Center at College of the Mainland has implemented an Early Alert Program. 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 Counseling Department. As student success and retention is very important to us, someone from the Counseling Department will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

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 the student has any questions or concerns about any aspect of this course, please contact me 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 Department of Science at (409) 933-8330.

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. Finally, students, faculty, or staff which have had symptoms of COVID-19, received a positive test for COVID-19, or have had close contact with an individual infected with COVID-19 must complete the self-report tool.

Disclaimers and Additional Policies:

Late work:

Laboratory reports submitted one day after the due time on the due date will, if accepted, be deducted 5 points. Any part of the laboratory report submitted later than the above mentioned period will not be accepted.

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. 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. Students that experience a technology outage should contact Sapling Learning (support@saplinglearning.com) to determine if any outages had occurred on the Sapling Learning site. After confirming the outage was due to a problem with the Course Management System, please sent the information to your instructor. 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 deadline, the deadline for the assignment or assessment may be extended at the discretion of your instructor.

Chemistry lab Safety Rules:

Chemistry Laboratory Safety rules will be provided during the first or second class. Do not wear open-toed shoes/sandals of **any type** in the lab. If worn, the student will not be allowed to do the lab for that day (no make-up labs are allowed). You must wear shoes that provide adequate protection from spilled chemicals, broken glass, or apparatus that falls to the floor. You must wear shirt that covers the stomach and lower back as well as the upper arms. Also, you are required to wear lower body clothing that covers the entire leg to the ankle such as pants or jeans. Do not wear clothing with loose sleeves.

Details will be given during the first laboratory session. You are required to sign the safety agreement in the first lab (Safety in the Chemical Laboratory).

Student Success Tips

- *Attend Class:*
  - *Pay attention.*
  - *Be prepared.*
  - *Ask questions.*
- *Take good notes:*
  - *Write down as much as possible.*
  - *Listen for signals.*
  - *Use abbreviations and symbols.*
  - *Copy **whatever** is written on the board.*
  - *Look over notes before the next class.*
- *Study Early and Often:*
  - *Stay Ahead or at least Current.*
  - *Study two to three hours for each hour of lecture.*
  - *Study one to two hours for every three hours of lab.*

- *Approaches to Studying:*
    - *Information presented sequentially and often in mathematical terms.*
    - *Learn early topics well.*
    - *Build on foundation.*
- *Actual Studying:*
    - *Study in an environment similar to the testing environment.*
    - *Begin with Course Objectives.*
        - *Read over class notes with text.*
        - *Work assigned exercises and problems.*
        - *Work more exercises and problems.*
- *Test Taking:*
    - *Stay relaxed.*
        - *Preparation reduces anxiety.*
    - *Solve problems systematically.*
    - *Perform a first pass answering all of the question you are certain of.*
    - *Work all problems.*
    - *On multiple choice questions eliminate the wrong answers.*
- *Laboratory Preparation:*
    - *Peruse the Introduction and Experimental Procedure **before** lab.*
    - *Don't miss. <u>No make-up labs.</u>*
    - *Stay focused.*

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 Blackboard.