



WACO, TEXAS

**COURSE SYLLABUS
AND
INSTRUCTOR PLAN**

General Chemistry II

CHEM 1412_01

Larry D. Benton

NOTE: This is a Summer course.

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.

Includes basic laboratory experiments supporting theoretical principles presented in CHEM 1412, as well as an introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports.

Prerequisites and/or Corequisites:

Prerequisite: CHEM 1411 with a grade of C or better. Semester Hours 4

Course Notes and Instructor Recommendations:

A scientific calculator is needed for this class. Lab notebook and goggles are required for lab.

Instructor Information:

Instructor Name: Larry D. Benton

MCC E-mail: lbenton@mclennan.edu

Office Phone Number: (254) 299-8195

Office Location: Science Building SB 310 (Third Floor)

Office/Teacher Conference Hours: TBA

Other Instruction Information:

Required Text & Materials:

Title:

Author:

Edition:

Publisher:

ISBN:

MCC Bookstore Website: <http://www.mclennan.edu/bookstore/>

Methods of Teaching and Learning:

This class consists of three hours per day of solving problems during the lecture time from the assigned chapter and 9 hours per week of laboratory experimentation. The lecture portion of the class will be problems worked on the whiteboard, and open discussion. The student is expected to study the PowerPoint presentations for each chapter and read the assigned chapter in the book. Problems worked will be real world chemical problems that are solved using mathematics to find absolute solutions. The student is expected to be capable of using algebraic methods to solve mathematical problems.

The laboratory portion of the class is conducted with each student experiencing hands on experimentation in the lab. The student's review of the lab experiment prior to execution will enhance the learning experience. Students may be required to work individually or in groups. Learning to work cooperatively in the laboratory setting is an important aspect of the lab.

Course Objectives and/or Competencies:

Critical Thinking: Students' critical thinking abilities will be assessed through written lecture exams and/or lab reports.

Communication: Students will be required to research a topic relevant to the semester's coursework for presentation to a group of peers and faculty. Communication is also evaluated through testing, reporting of lab results and embedded research projects that require formalized reports.

Empirical/Quantitative: Students will be required to perform chemistry calculations on lecture exams and during weekly lab experiments and exercises. Emphasis is given to mathematical descriptions of the topics covered since this course is focused on the science and engineering student. Students are required to collect data and determine the implications the collected data set has in relation to the environment and the world around them.

Teamwork: Students will work in teams for some of the laboratory exercises. Each member of the team will carry some responsibility for data collection and/or interpretation. Other experiments will be carried out individually.

Learning Outcomes:

Lecture

Upon successful completion of this course, students will:

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties
3. Identify the characteristics of acids, bases, and salt, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of reaction and its dependence on concentration, time, and temperature
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
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy and free energy.
8. Discuss the construction and operation of galvanic and electrolytic cells, and determine standard and non-standard cell potentials.
9. Define nuclear decay process
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry.

Laboratory

Upon successful completion of this course, students will:

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Course Outline or Schedule:

Week 1 Introduction to class, Test, Chapter 9, 10, 11

Week 2 Test, Chapter 12, 13, and 14

Week 3 Test, Chapters 16, and 17

Week 4 Test, Chapters 18, 20, and 22

Week 5 Test, Make-Up Exam, Final Exam

August 8 All lab reports are due. Lab Check Out

August 10 Final Exam

Course Grading Information:

Your course grade will be based on the points received from the exams, the final, the lab grades, class participation (attendance and involvement in class) and the periodic exercise problems.

There will be five (5) 100-point exams. A single make-up exam will be offered for the chapter exams as scheduled. A time and day will be scheduled prior to the end of the semester for all students who missed a test to take the makeup exam. The makeup exam will be comprehensive. The final will be a 100-point comprehensive final and will be given on the final exam date.

There will not be a makeup test for the final exams. There will be take home test problems to be turned in and graded online. Eight labs will be given with the lab report to be turned in and graded the day after each lab is performed. The top 7 lab grades will be counted toward your final grade. Your grade will be calculated using the following breakdown:

In Class Exams	40%
Lab Notebook	10%
Lab grades	15%
Take Home Exams	20%
Final	15%

Your course letter grade will be based on the following scale: 90% or more of the total points will guarantee a grade of “A”; 80% or more guarantees “B”; 70% or more guarantees “C”; 60% or more guarantees “D”; below 60% of the total may result in an “F”.

Work that is not readable and meets basic English grammatical standards will not be graded. Mathematical solutions must be written in an easily followed mathematical proof style format and should be appropriately commented.

Laboratory notebooks must have the students name prominently displayed in the title page of the notebook, otherwise the notebook will not be graded.

Late Work, Attendance, and Make Up Work Policies:

Late work will not be accepted. Take Home Tests (Homework) is due immediately prior to the related test. Lab reports are due on Monday following the week the lab were performed. Make up labs are NOT offered with the following exception. The final exam will also be used as a make up exam. Students are responsible for identifying each paper turned in with their name in the upper margin of each page. Papers that are turned in without names or pages from work turned without names are discarded. Work that is not legible will not be graded and a zero will be recorded for that assignment. Proper grammar and punctuation is required for answers to essay questions. Proper format using a mathematical proof style is required for math related problems.

The laboratory manual has a pre-lab assignment which is to be completed prior to the students' lab period. Failure to complete the pre-lab may result in the student not being allowed into the lab to perform the lab experiment and will result in the student not getting a grade for that lab. It is of upmost importance that the student thoroughly reads and studies the lab experiment prior to attempting to execute the experiment. Inherent hazards associated with working in a laboratory setting can be minimized by studying the experiment before performing the experiment.

Student Behavioral Expectations or Conduct Policy:

If there is any evidence of cheating on any homework, quiz, test, or final, you will receive a zero for that item and cannot make it up or replace it and it cannot be dropped. Tobacco and tobacco product use is prohibited inside college buildings. This includes smokeless products as well as cigarettes, pipes, and cigars.

Safety equipment must be worn at all times: long pants/skirt (covering at least the top half of the calf), apron or lab coat, hair back, safety goggles, and, if necessary, gloves. No open-toed shoes, shoes with holes in them, shoes that leave the top of the foot exposed, hats of any sort, shorts, food or drink are allowed. Anyone acting in an unsafe manner will be warned once. If seen without safety equipment or acting improperly a second time, they will be asked to leave the laboratory. They will be allowed to return in 30 minutes to finish their work, if they can. If they are asked to leave more than once for any given experiment, they will receive a zero for that experiment's lab report. Safety is the MOST important part of lab. Students must abide by the general safety regulations as described in the chemistry 1411 laboratory manual.

Please read and abide to the General Conduct Policy in the Highlander Guide. The guidelines outlined in the MCC Attendance Policy will be followed. Please read the MCC Attendance Policy at the link below.

[Click Here for the MCC Attendance/Absences Policy](https://www.mclennan.edu/highlander-guide/policies.html)

(<https://www.mclennan.edu/highlander-guide/policies.html>)

Click on the link above for the college policies on attendance and absences. Your instructor may have additional guidelines specific to this course.

Updated 11/04/2022



ACADEMIC RESOURCES/POLICIES

Accommodations/ADA Statement:

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit www.mclennan.edu/disability.

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

disabilities@mclennan.edu 254-
2998122

Room 319, Student Services Center

Title IX:

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the acting Title IX Coordinator at titleix@mclennan.edu or by calling, Dr. Claudette Jackson, (Diversity, Equity & Inclusion/Title IX) at (254) 299-8465. MCC employees are mandatory reporters and must report incidents immediately to the Title IX Coordinator. Individuals may also contact the MCC Police Department at (254) 299-8911 or the MCC Student Counseling Center at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>.

Go to McLennan's Title IX webpage at www.mclennan.edu/titleix/. It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

Student Support/Resources:

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

Academic Support and Tutoring is here to help students with all their course-related needs. Specializing in one-on-one tutoring, developing study skills, and effectively writing essays. Academic Support and Tutoring can be found in the Library and main floor of the Learning Commons. This service is available to students in person or through Zoom from 7:30 am - 6:00 pm Monday through Thursday and 7:30 am - 5:00 pm on Friday. You can contact the Academic Support and Tutoring team via Zoom (<https://mclennan.zoom.us/j/2542998500>) or email (ast@mclennan.edu) during the above mentioned times.

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact either MCC CREW – Campus Resources Education Web by calling (254) 299-8561 or by emailing crew@mclennan.edu or a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Both are located in the Completion Center located on the second floor of the Student Services Center (SSC) which is open Monday-Friday from 8 a.m.-5 p.m.

Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff. To schedule an appointment, go to https://mclennan.co1.qualtrics.com/jfe/form/SV_07byXd7eB8iTqJg. Both the Completion Center and Paulanne's Pantry are located on the second floor of the Student Services Center (SSC).

MCC Foundation Emergency Grant Fund:

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to

<https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf.

MCC Academic Integrity Statement:

Go to www.mclennan.edu/academic-integrity for information about academic integrity, dishonesty, and cheating.

Minimum System Requirements to Utilize MCC's D2L|Brightspace:

Go to <https://www.mclennan.edu/center-for-teaching-and-learning/FacultyandStaffCommons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

Minimum Technical Skills:

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

Email Policy:

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails. For more information about your student email account, go to www.mclennan.edu/studentemail.

Instructional Uses of Email:

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication

method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

Email on Mobile Devices:

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email Helpdesk@mclennan.edu for help.

You can find help on the McLennan website about connecting your McLennan email account to your mobile device:

- [Email Setup for iPhones and iPads](#)
- [Email Setup for Androids](#)

Forwarding Emails:

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

For more helpful information about technology at MCC, go to [MCC's Tech Support Cheat Sheet](#) or email helpdesk@mclennan.edu.

Disclaimer:

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.