



WACO, TEXAS

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**COURSE SYLLABUS  
AND  
INSTRUCTOR PLAN**

**General Chemistry II**

**CHEM 1412\_201**

**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: TWTh 1:15 PM to 2 PM

Other Instruction Information:

**Required Text & Materials:**

Title: Chemistry: Molecular Nature of Matter & Change

Author: Silberburg

Edition: 10th Edition

Publisher: McGraw-Hill

ISBN: 978-1-266-18994-4

**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 on the whiteboard 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 Le Chatelier'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 Attendance/Participation Guidelines:**

If a student is not in attendance in accordance with the policies/guidelines of the class as outlined in the course syllabus as of the course census date, faculty are required to drop students from their class roster prior to certifying the respective class roster. A student's financial aid will be re-evaluated accordingly and the student will only receive funding for those courses attended as of the course census date.

Before the 60% point of the semester, a student who is absent for 25% or more of a face-to-face or blended course or who misses 25% or more of assigned work for an online course will be withdrawn from the course with a grade of W. A student may also request to be withdrawn with a grade of W before the 60% point of the semester. After the 60% point of the semester, the student may request to be withdrawn if the student is passing, or be assigned the final grade earned at the end of the semester after grades have been updated to reflect missing work.

**Course Outline or Schedule:**

Week 1	Introduction to class, Chapter 11
Week 2	Chapter 11, 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 11	All lab reports are due. Lab Check Out
August 13	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 three (4) 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 make-up exam. The make-up exam will be comprehensive. The final will be a 100-point comprehensive final and will be given on the final exam date.

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

<b>In Class Exams</b>	<b>40%</b>
<b>Lab Notebook</b>	<b>10%</b>
<b>Lab grades</b>	<b>15%</b>
<b>Take Home Exams</b>	<b>20%</b>
<b>Final</b>	<b>15%</b>

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 on.

Laboratory notebooks must have the students name prominently displayed on 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 are 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

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lab to perform the lab experiment and will result in the student not getting a grade for that lab. It is of utmost 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.

07/02/2024



## 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 Accommodations (Disability Services) 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](http://www.mclennan.edu/disability)

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

[disabilities@mclennan.edu](mailto:disabilities@mclennan.edu) (254)299-8122 Room  
319, Student Services

### **Title IX:**

Title IX of the Education Amendments of 1972 is a Federal civil rights law that prohibits discrimination on the basis of sex in educational programs and activities that receive Federal funds. 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 a Title IX incident are encouraged to immediately contact the Title IX Coordinator at [titleix@mclennan.edu](mailto:titleix@mclennan.edu) or by calling, Dr. Claudette Jackson, (Accommodations/Title IX) at (254) 299-8465.

Additionally, Title IX provides rights and protections for pregnant and newly parenting students which can include educational accommodations such as excused absences

and the opportunity to make up assignments and tests. Lactation spaces are also available on campus. Please email [titleix@mclennan.edu](mailto:titleix@mclennan.edu) for more information.

MCC employees are mandatory reporters and must report incidents immediately to the Title IX Coordinator. Faculty and Staff may email [titleix@mclennan.edu](mailto:titleix@mclennan.edu) to submit a report.

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 may report sexual harassment anonymously by visiting <https://www.lighthouse-services.com>

Visit McLennan's Title IX webpage at <https://www.mclennan.edu/titleix/> to learn more about Title IX protections, reporting, and resources.

### **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. You can contact the Academic Support and Tutoring team via Zoom or email ([ast@mclennan.edu](mailto:ast@mclennan.edu)) by going to our website (<https://www.mclennan.edu/academic-support-and-tutoring/>)

At our campus, we understand that students face numerous challenges beyond the classroom. That's why we offer Success Coaches who are dedicated to helping you succeed. Our coaches know that life can sometimes get in the way of your educational goals. Through personalized meetings, Success Coaches empower you to overcome obstacles, maximize your potential, and create a clear path to both academic and personal success. Our Success Coaches are ready to help you achieve your dreams! Schedule your appointment today by calling 254-299-8226 or emailing [success@mclennan.edu](mailto:success@mclennan.edu).

College personnel also recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources and other essential resources, we encourage you to contact the CREW - Campus Resources Education Web by calling 254-299-8561 or emailing [crew@mclennan.edu](mailto:crew@mclennan.edu).

Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff. To schedule an appointment, go to <https://calendly.com/paulannspantry-mcc/15min>.

Success Coaching Services, the CREW, and Paulanne's Pantry are located on the second floor of the Student Services building in Success Coaching Services, suite 249.

The Student Counseling Center offers confidential mental health counseling to currently enrolled students at no charge. Counselors are trained to help students with problems related to personal, social, and emotional concerns. Sessions focus on short-term goals in order to facilitate students college success and adjustment. This service is available to students in person or through Zoom.

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

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**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:**

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**Email Policy:**

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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](http://www.mclennan.edu/studentemail).

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