A. COURSE INFORMATION

Course number/section: 41844.201709 CHEM. 1412.001
Class meeting time: TR 9:30-10:45 am
Class location: Ball Hall 104
Course number/section: 41845.201709 CHEM. 1412.002
Class meeting time: TR 8:00-9:15 am
Class location: Engineering 104
Course Website: Announcements, forms, handouts, learning materials etc. are either posted, or will be posted on blackboard (https://bb9.tamucc.edu). You will be able to login using your student ID and Password.

B. INSTRUCTOR INFORMATION

Instructor: Lin Zhang
Office location: HRI 104
Office hours: TR 3-6 pm
Telephone: 361-825-2095
e-mail: lin.zhang@tamucc.edu
Appointments: by request
SI Leader: Erica Frosch efrosch@islander.tamucc.edu

C. COURSE DESCRIPTION

General Chemistry is the foundation course in chemistry for all science majors. This course will provide a basic understanding of chemical concepts such as periodic properties, structure, bonding, thermodynamics, and chemical kinetics, and equilibrium.

D. PREREQUISITES AND COREQUISITES

Prerequisites
Prerequisites: CHEM1411 (General Chemistry I) and MATH1314 (College Algebra) or equivalents.
Co-requisites: All students must be registered for an associated CHEM1412 laboratory course and SMTE0093

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
Online Homework: You must have the code that accompanies the text to enroll in the online homework Connect and LearnSmart, and the code for the ALEKS online
assessment and tutoring service (provided on Blackboard and in class). You can also buy the e-version of the text and the code online. All students are required to start Connect and ALEKS the first week of school. Regular assignments will be posted and students are required to complete the assignments on-time.  

**Supplies:** Calculator and Periodic Table.

**F. STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

Exams and online work will be used to assess students learning and by the end of the semester students will master the following material:

- Intermolecular Forces
- Colligative Properties
- Factors that affect reaction rates
- The Rate Law: The Effect of Concentration on Rate
- The Change of Concentration with Time
- The concept of Equilibrium
- Interpreting and Working with equilibrium Constants
- Heterogeneous equilibria
- Calculating Equilibrium Constants
- Le Chatelier's Principle
- Bronsted-Lowry Acids and bases
- The Autoionization of Water
The pH Scale
Strong Acids and Bases
Weak Acids and Bases
Relationship between Ka and Kb
Lewis acids and Bases
The Common-Ion Effect
Solubility Equilibria
Factors that Affect Solubility
Chemical Thermodynamics
Spontaneous Process
Entropy and the Second Law of Thermodynamics
Entropy Changes in Chemical Reactions
Gibbs Free Energy
Oxidation States and Oxidation-Reduction Reactions
Balancing Oxidation-Reduction Reactions
Free Energy and Redox Reactions
Cell EMF Under Nonstandard Conditions

G. INSTRUCTIONAL METHODS AND ACTIVITIES
This course is face to face and some online homework are posted on Black Board. Randomly selected students will be asked to answer questions during each class as a way to check attendance and evaluate class participation. PowerPoint slides will be made available to students on Blackboard prior to lectures, and it is the responsibility of the student to download and/or print these materials prior to class. The pace of the class is set with the expectation that the student has the lecture slides in his/her possession. Course grades will be determined based on a student’s completion and scores received on three mid-term exams, a final exam,
online homework (ALEKS and Connect), in-class activities, and the associated laboratory course.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Lecture Evaluation: Option I
Attendance/Class participation 10%
Exam I 10%
Exam II 10%
Exam III 10%
Final Exam 10%
Connect (Homework/ Learn Smart) 12.5%
ALEKS 12.5%
Laboratory 25%
Total 100%

Final letter grading for the course will be as follows: A; 90%, B; 80%, C; 70%, D; 60%, F < 60%.

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Unit</th>
<th>Lecture Dates (2016)</th>
<th>*Exam Date</th>
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<tbody>
<tr>
<td>1</td>
<td>9/5 – 9/28</td>
<td>Exam 1</td>
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<td>(CH 12-13, 16)</td>
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<td></td>
<td>9/28 (Thur)</td>
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<td>2</td>
<td>10/3 – 10/31</td>
<td>Exam 2</td>
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<td>(CH 17 – 19)</td>
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<td></td>
<td>10/31 (Tue)</td>
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<td>3</td>
<td>11/2 – 12/5</td>
<td>Exam 3</td>
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<tr>
<td></td>
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<td>(CH 20 – 21)</td>
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<td></td>
<td>12/5 (Tue)</td>
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<td></td>
<td>12/12 and 12/14 Cumulative final exam</td>
<td>Final Exam (CH 12-13, 16 – 21)</td>
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*Exams 1 – 3 will be taken during regular class time

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<thead>
<tr>
<th>Class and lecture time</th>
<th>Final Exam Date</th>
<th>*Final Exam Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1412.001 (9:30 – 10:45am)</td>
<td>Tue Dec/12</td>
<td>8:00 am – 10:30 am</td>
</tr>
<tr>
<td>CHEM 1412.002 (8:00 – 9:15am)</td>
<td>Thu Dec/14</td>
<td>8:00 am – 10:30 am</td>
</tr>
</tbody>
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*Please note that exam start time may be different than normal class start time
University Final Exam Schedule: [http://registrar.tamucc.edu/Register%20for%20Classes/Final_Exams.html](http://registrar.tamucc.edu/Register%20for%20Classes/Final_Exams.html)

Note: Changes in this course schedule may be necessary and will be announced to the class by the instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES
**Attendance/Tardiness**

The student is expected to be on time and attend every class. If absent, it is the responsibility of the student to obtain missed information from a classmate. Missed information includes not only lecture notes, but also any possible information regarding syllabus changes. The student is expected to arrive on time prepared to take notes, i.e., with pen, paper, and colored markers/pencils.

**Late Work and Make-up Exams**

There is no make-up exam for this class. Students with a university approved scheduled absence (athletics, military duty, etc.) MUST contact the instructor well in advance of the scheduled absence. Exams may be taken early in those specific cases. Students who do not arrange to take the exam ahead of time will not be eligible for this special consideration. A written excuse from the university department involved or the Office of the Dean of Students is required.

**Extra Credit**

There is no extra credit in this course.

**Cell Phone Use**

Before you enter the lecture hall turn OFF your cellular phone! Beepers must also be turned off or put on silent mode. Electronic interruptions absolutely will NOT be tolerated.

**Laptop Use**

Laptops are to be used only for lecture material. Use of laptops for non class items will not be permitted.

**Food in Class**

Generally, food in class is not permitted during class. It is permissible to bring appropriate snacks during the 2 1/2 hour final exam. Coffee, sodas, energy drinks are permissible.

**Missed Exam**

Students who do not arrange to take the exam ahead of time will not be eligible for this special consideration. A written excuse from the university department involved or the Office of the Dean of Students is required.

**Participation**

Students are expected to participate during the classes, this way contributing to the learning process of the group. The classes are designed as an active environment where every new concept is applied to real synthetic examples. The students are expected to participate as a team, applying critical thinking to the resolution of the different practical challenges proposed.

**Electronic Devices During Exams**

Any use of an electronic device (Cell Phone, MP3 player, CD player, computer, etc.) during an exam is strictly prohibited. Any use of such a device will be considered an attempt to cheat on the exam and will result in a 0 on the exam although more severe actions may be considered. Calculators may be allowed on exams when needed, but only for mathematical operations. The use of programmable calculators to store or retrieve information during an exam will be considered an attempt to cheat on the exam. Also, if a calculator is discovered to have saved programs or information that could be used as an unfair advantage on the exam, this will be considered an attempt to cheat on the exam. Programs or operators that aid in mathematical operations such as a quadratic equation calculator may be used.
Student Responsibility:
It is the student’s responsibility to read and be aware of the contents of this syllabus and the course website on Blackboard. Announcements and changes are communicated in the classroom, Blackboard, and/or emails.

SI Leaders:
Supplemental instruction leaders are undergraduates who were successful in this course. They attend all of the lectures, develop and implement SI sessions (activities pertaining to information covered in lecture), and hold office hours. They serve as an additional resource for help in completing and understanding course materials. A complete schedule of office hours and SI sessions will be posted on Blackboard shortly after the beginning of classes. Studies have shown that students who attend SI sessions earn 0.5 – 1.0 GPA points higher than students who do not attend SI sessions.

Tutoring and Test-Taking Strategies
To be successful in this course, and most others, you must develop good note-taking skills, organization skills, study habits, and test-taking strategies from the very beginning. Your instructor, seminar leaders and TA’s are always available for help, but don’t wait until it’s too late! It is important that you are aware that the Center for Academic Student Achievement (http://casa.tamucc.edu/) provides free tutoring, test-taking strategies, and extra help. Take advantage of this service! Should you have test anxiety, stress problems, or need help with study skills, the University Counseling Center (http://counseling.tamucc.edu/) provides a free service.

K. COLLEGE AND UNIVERSITY POLICIES

- Academic Integrity (University)
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.
  See Full University Policy at http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

- Classroom/Professional Behavior
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.
• **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state, and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. **Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.** Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course.

• **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

• **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.
If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services Office for assistance at (361) 825-5816. My office is a Veterans Green Zone office. If you need to talk, come and see me.

http://disabilityservices.tamucc.edu/

• Statement of Academic Continuity
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University-Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

K. OTHER INFORMATION
  In choosing to take this course, you are agreeing to abide by the course rules, regulations, and standards. This includes agreeing to be respectful to your instructors and fellow students. Conduct that is disruptive or disrespectful will not be tolerated and is grounds for dismissal from the class. Should you have concerns or questions, you are to discuss them with the instructor as soon as possible. However, you are bound by these rules, regulations, and standards from the first day of the class throughout the duration of the course.

Academic Advising
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER
  I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.