A. COURSE INFORMATION

Course number/section: CHEM. 1412/883, 884, 894, 895, 896
Class meeting time: TR 12:30-1:45 pm
Class location: IH 160
Prerequisites: CHEM 1411
Course Website: Announcements, forms, handouts, learning materials etc. are either posted, or will be posted on blackboard. You will be able to login using your student ID and Password.

B. INSTRUCTOR INFORMATION

Instructor: Feri Billiot
Office location: CS207
Office hours: TR 1:45-3:15 pm, M 10-noon
Telephone: 361-8256067
e-mail: fereshteh.billiot@tamucc.edu
Appointments: by request

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
General Chemistry I (CHEM 1411)

Co-requisite:
Student Laboratory Safety Training (SMTE-0093) is required for continued participation in the lab

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

H. MAJOR COURSE REQUIREMENTS AND GRADING
Lecture Evaluation:
Exam I 100
Exam II 100

3
Exam III 100
Final Exam 100
Connect Homework 50
ALEKS 150
LearnSmart 50
Attendance 50
Laboratory 250
Learning Community 50
Total 1000

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>Week of</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 16</td>
<td>General Chemistry I Review</td>
</tr>
<tr>
<td>January 23</td>
<td>Chapter 12</td>
</tr>
<tr>
<td>January 30</td>
<td>Chapter 13</td>
</tr>
<tr>
<td>February 6</td>
<td>Chapter 16</td>
</tr>
<tr>
<td>February 13</td>
<td>Exam I</td>
</tr>
<tr>
<td>February 20</td>
<td>Chapter 17</td>
</tr>
<tr>
<td>February 27</td>
<td>Chapter 18</td>
</tr>
<tr>
<td>March 13</td>
<td>Spring Break</td>
</tr>
<tr>
<td>March 20</td>
<td>Chapter 19</td>
</tr>
<tr>
<td>March 27</td>
<td>Exam II</td>
</tr>
<tr>
<td>April 3</td>
<td>Chapter 20</td>
</tr>
<tr>
<td>April 10</td>
<td>Chapter 21</td>
</tr>
<tr>
<td>April 17</td>
<td>Chapter 21 Continued</td>
</tr>
<tr>
<td>April 24</td>
<td>Exam III</td>
</tr>
<tr>
<td>May 1</td>
<td>Review for final</td>
</tr>
</tbody>
</table>

Exam Schedule
Exam I February 16
Exam II March 30
Exam III April 27
Final Exam: May 4 at 11 am

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
Cell phones and laptops are allowed during lectures. 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.

Food in Class
Food is allowed in this course.

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.

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)
The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must be submitted. No student is eligible to receive a W without completing the official drop process by the deadline. Please consult the Academic 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, and the College of Science and Engineering Grade Appeals webpage at http://sei.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/](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.