General Chemistry I – CHEM 1411
Department of Physical & Environmental Sciences
Fall 2016

A. COURSE INFORMATION

Course number/section: CHEM 1411.002
Class meeting time: Lecture: T-Th 2:00 – 3:15 p.m.
Class location: EN-104
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Tim Causgrove
Office location: CS 202
Office hours: M 10-11, T 11-12, W 2-4, Th 11-12
Telephone: 361-825-2399
e-mail: tim.causgrove@tamucc.edu
Appointments: arrange by e-mail to address above

C. COURSE DESCRIPTION

Catalog Course Description
The foundation course in chemistry. Stoichiometry, chemical equilibria, atomic structure, chemical bonding, periodic properties, thermodynamics, chemical kinetics, and descriptive chemistry of the elements. Laboratory involves development of basic skills. This course counts toward the natural science component of the University Core Curriculum. Either CHEM 1305 - Introductory Chemistry or CHEM 1411, but not both, may be applied towards the core requirement.

Extended Course Description
The overall objective is for the student to understand chemical formulas, structure, and processes. The secondary objectives of this course are to prepare the students for the second semester of General Chemistry and for Organic Chemistry, and involve the students in critical thinking exercises through course assignments.

D. PREREQUISITES AND COREQUISITES

Prerequisites
None

Corequisites
SMTE 0093; Registration in a laboratory section

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
CHEMISTRY(w/ALEKS&CONNECT Access Codes) by Silberberg; ISBN 9781259678493
Optional Textbook(s) or Other References
None

Supplies
Scientific calculator; laboratory will require lab coat and goggles

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.

By the end of this course, students should be able to:
1. Describe the structure of atoms
2. Predict the general behavior of elements based on periodic rule
3. Differentiate between and describe ionic and covalent bonding
4. Perform basic stoichiometric calculations
5. Perform calculations based on the ideal gas law
6. Determine Lewis structures of simple molecules

G. INSTRUCTIONAL METHODS AND ACTIVITIES
The course is given by face-to-face lectures augmented downloadable notes. Sample problems are presented frequently. There will be three in-class exams and a final exam. Online homework is required.

There is also a laboratory associated with the course. For all information relating to the laboratory, including safety information, please see the laboratory syllabus.

H. MAJOR COURSE REQUIREMENTS AND GRADING
Your grade in this course will be based on the items listed below. Grades for the course will be assigned according to a ten-point scale: A for $\geq$720 pts, B for 640-719 pts, C for 560-639 pts, D for 480-559 pts, and F for <480 pts. Rounding is at the discretion of the instructor.
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>POINTS</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (3)</td>
<td>300</td>
<td>37.5</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
<td>12.5</td>
</tr>
<tr>
<td>Homework</td>
<td>100</td>
<td>12.5</td>
</tr>
<tr>
<td>Lab</td>
<td>200</td>
<td>25</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
<td>12.5</td>
</tr>
</tbody>
</table>

I. COURSE CONTENT/SCHEDULE

The schedule below is tentative. It is your responsibility to keep up with changes to the schedule, primarily by checking Blackboard regularly.

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>CHAPTER(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/25</td>
<td>Introduction to General Chemistry and Atomic theory</td>
<td>1</td>
</tr>
<tr>
<td>8/29</td>
<td>Ionic and covalent bonding</td>
<td>2</td>
</tr>
<tr>
<td>9/1</td>
<td>Binary ionic compounds polyatomic ions and molar mass</td>
<td>2</td>
</tr>
<tr>
<td>9/6</td>
<td>Bohr model of the hydrogen atom</td>
<td>7</td>
</tr>
<tr>
<td>9/8</td>
<td>Quantum numbers and atomic orbitals</td>
<td>7</td>
</tr>
<tr>
<td>9/13</td>
<td>Many-electron atoms and exclusion principle</td>
<td>8</td>
</tr>
<tr>
<td>9/15</td>
<td>Construction of the periodic table</td>
<td>8</td>
</tr>
<tr>
<td>9/20</td>
<td><strong>Exam #1</strong></td>
<td></td>
</tr>
<tr>
<td>9/22</td>
<td>Electron configurations</td>
<td>8</td>
</tr>
<tr>
<td>9/27</td>
<td>Effective nuclear charge and trends in atomic properties</td>
<td>8</td>
</tr>
<tr>
<td>9/29</td>
<td>Lewis symbols and ionic bonding</td>
<td>9</td>
</tr>
<tr>
<td>10/4</td>
<td>Covalent bonding and electronegativity</td>
<td>9</td>
</tr>
<tr>
<td>10/6</td>
<td>Molar mass, molecular weight, formula weight</td>
<td>3</td>
</tr>
<tr>
<td>10/11</td>
<td>Balancing reactions and stoichiometric calculations</td>
<td>3</td>
</tr>
<tr>
<td>10/13</td>
<td>Limiting reactants</td>
<td>3</td>
</tr>
<tr>
<td>10/18</td>
<td><strong>Exam #2</strong></td>
<td></td>
</tr>
<tr>
<td>10/20</td>
<td>Solutions and molarity</td>
<td>3</td>
</tr>
<tr>
<td>10/25</td>
<td>Precipitation reactions and acid-base reactions</td>
<td>4</td>
</tr>
<tr>
<td>10/27</td>
<td>Oxidation numbers and redox reactions</td>
<td>4</td>
</tr>
<tr>
<td>11/1</td>
<td>Pressure, Boyle’s Law, Charles’ Law, ideal gas law</td>
<td>5</td>
</tr>
<tr>
<td>11/3</td>
<td>Gas law problems, kinetic theory</td>
<td>5</td>
</tr>
<tr>
<td>11/8</td>
<td>Heat, work and the first law</td>
<td>6</td>
</tr>
</tbody>
</table>
11/10 Enthalpy and reactions 6
11/15 Hess’s Law and standard enthalpies 6
11/17 Exam #3
11/29 Molecular Lewis structures and VSEPR theory 10
12/1 Molecular polarity and valence bond theory 10-11
12/6 Review
12/8 Final Exam, 1:45 p.m. – 4:15 p.m.

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
  It is assumed that students will arrive on time for each class. If you miss class or are late, it is your responsibility to catch up on material that you missed. On exam days, no student will be admitted after the first examinee has left.

Late Work and Make-up Exams
  Extensions on homework assignments will be available on a per-request basis. There will be no make-up quizzes. Make-up exams are only available to those who have an official university excuse (e.g. athletics, class field trips) AND have made arrangements well in advance of the exam day.

Extra Credit
  There will be no extra credit assignments.

Laptop/Cell Phone Use
  Laptops, tablets, and cell phones are not permitted during exams. You may NOT use your cell phone as a calculator.

Missed Exam
  If you miss an exam, the final exam will be counted twice to replace the missed exam. If you miss two exams, the second missed exam will be recorded as a zero.

Others
  Mid-term grades will be calculated based on 75% weighting for exams taken at that point and 25% on quizzes completed at that point.

K. COLLEGE AND UNIVERSITY POLICIES
  • Academic Integrity (University)
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **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 submitted. No student is eligible to receive a W without completing the official drop process by this 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://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.

  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.

### L. OTHER INFORMATION

- **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.