TEXAS A&M UNIVERSITY – CORPUS CHRISTI
Department of Physical and Environmental Sciences
Fall 2019

A. COURSE INFORMATION

Course Number/Section: CHEM 1411.001
Class Meeting Time: MWF 1:00 PM – 1:50 PM
Class Location: EN 106
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Shreyashi Ganguly
Office Location: CS 246
Telephone: 361 825 4060
e-mail: sganguly@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 entities, terminologies and concepts such as nomenclature, periodic table, properties of elements, structure and bonding, and stoichiometric relationships.

D. PREREQUISITIES FOR THE COURSE

None

Co-requisites
Student Laboratory Safety Training (SMTE-0093)

E. REQUIRED TEXTBOOK(S) AND SUPPLIES


Online Homework: You must have the code that accompanies the text to enroll in the online homework Connect, LearnSmart and ALEKS. You can also buy the e-version of the text and the code online. All students are required to start online work the first week of school. Regular assignments will be posted and students are required to complete the assignments on-time.

Supplies: Nonprogrammable Scientific 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 on 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 understand:

- Atomic Structure and Quantum Theory
- Periodic Table, Properties and Trends
- States and Properties of Matter
- Theories of Bonding
- Electron Configuration
- Moles and Stoichiometry
- REDOX Reactions
- Acids, Bases, and Water Solutions
- Units of Measure, Significant Figures, and Rounding
- Thermochemistry
- Gases and the Ideal Gas Law
- Orbital Hybridization

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The course is given by face-to-face lectures augmented with PowerPoint slides. Sample problems are presented frequently. Students will be called upon to answer questions. There will be TWO in-class exams and a FINAL EXAM. Online homework is required. There is also a LABORATORY associated with the course.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Lecture Evaluation:

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Exam I</td>
<td>150</td>
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<tr>
<td>Exam II</td>
<td>150</td>
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<tr>
<td>Final Exam</td>
<td>150</td>
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<tr>
<td>Connect Homework</td>
<td>90</td>
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<td>ALEKS</td>
<td>135</td>
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<tr>
<td>Laboratory</td>
<td>225</td>
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<tr>
<td>Grand Total</td>
<td>900</td>
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Final letter grading for the course will be as follows: A = 90% +; B = 80% +; C = 70% +; D = 60% +; F = < 60%.

I. COURSE CONTENT/SCHEDULE

The schedule below is a preliminary outline of the semester. It is your responsibility to keep up with the changes to this schedule. The reading and problems assignments should be completed before the due dates. Failure to stay current on reading and problem assignments will greatly affect your ability to keep up during lecture and will affect your grade in this course.

<table>
<thead>
<tr>
<th>Chapters and Sections</th>
<th>Topics</th>
</tr>
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<tbody>
<tr>
<td>1.1, 2.1, 2.2, 2.5</td>
<td>Definitions (except Energy), Atomic Overview, Mass Conservation, Atomic Theory Today</td>
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<tr>
<td>2.6, 2.7, 2.8, 1.4, 1.5</td>
<td>Periodic Table, Bonding, Formulas and</td>
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<tr>
<td>Topic</td>
<td>Coverage</td>
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<tr>
<td>Naming (except organic naming and models), Measurement and Problem Solving, Conversions, Temperature, Uncertainty, Significant Figures</td>
<td>7.1, 7.2, 7.3, 7.4</td>
</tr>
<tr>
<td>Nature of Light, Atomic Spectra, Atomic spectra, Wave-Particle Duality, Quantum Mechanical Model, Orbitals and Shapes</td>
<td>8.1, 8.2, 8.3, 8.4</td>
</tr>
<tr>
<td>Chemical bonds, Lewis structures and Octet Rule, Ionic Bonding, Covalent bonding model,</td>
<td>9.3 (Cont.), 9.5, 9.6</td>
</tr>
<tr>
<td>Exam 1, Covalent bonding model, Electronegativity and bond polarity, Polarity and ionic character, Metallic bonding</td>
<td>3.1, 3.2, 3.3, 3.3, 3.4</td>
</tr>
<tr>
<td>Mole, Formulas (except structures and isomers), chemical equations and balancing, stoichiometry, limiting reactants, % yield, solution stoichiometry, Solution Stoichiometry, Molarity</td>
<td>4.1, 4.4, 4.5, 4.6</td>
</tr>
<tr>
<td>Solution Stoichiometry, Dilutions, Water as a solvent, Dissolution, Dissociation, Electrolytes, Acid-Base reactions, Titrations, REDOX, Oxidation numbers, Elements in Redox reactions, Activity Series</td>
<td>5.1, 5.2, 5.3, 5.4, 5.5*</td>
</tr>
<tr>
<td>Gas characteristics, pressure and units, Gas Laws, STP, Gas Density, Molar Mass of Gas, Partial Pressure, *Effusion and Diffusion only</td>
<td>6.1, 6.2, 6.3, 6.4, 6.5, 6.6</td>
</tr>
<tr>
<td>Energy, Heat, Work, Units, Enthalpy, Calorimetry, Stoichiometry of Thermochemical Equations, Hess Law, Heats of Formation and Reactions</td>
<td>10.1, 10.2</td>
</tr>
<tr>
<td>Exam 2, Resonance, Formal Charge, Oxidation Number, Exceptions to Octet Rule, VSEPR, Molecular Polarity</td>
<td>10.2 (Cont.), 10.3</td>
</tr>
<tr>
<td>VSEPR, Molecular Polarity, Thanksgiving</td>
<td>11.1, 11.2</td>
</tr>
<tr>
<td>Valence Bond Theory, Hybridized Orbitals, Orbital Overlaps for Single and Double Bonds (sigma and pi bonds)</td>
<td>Review, Last Day</td>
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</tbody>
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**J. COURSE POLICIES**

**Attendance/Tardiness**

The student is expected to be on time and attend every class. 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 or take exam with appropriate supplies.

**Late Work and Make-Up Exams**

There will be no make-up exams for this class. If you miss one lecture exam, your FINAL EXAM grade will be counted twice to replace the missed exam. If you miss BOTH the lecture exams, you will receive a zero for the second missed exam. Certain university-related circumstances may warrant a makeup exam with prior notification, documentation, and arrangements. Do not show up late to an exam; **NO student will be admitted to the exam after the first exam-taker has left.**

**Extra Credit**

There is no extra credit in this course. The grade is determined as per “Section H” above.

**Cell Phone Use**

Before you enter the lecture hall turn **OFF** your cell phone. Cell phones are not permitted in class, not even as a calculator. Electronic interruptions will NOT be tolerated!

**Laptop Use**

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

**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.

**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**

See Late Work and Make-Up Exams above.

**Participation**

Students are expected to attend all classes and be prepared to ask and/or answer questions, however, there are not penalties for missing a class.

**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.
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 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 (Driftwood Building: 825-2703) provides a free service.

(NOTE: I reserve the right to alter the type and number of testing/lectures, grand total points, and course materials, as required during the semester)

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://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 statue 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.

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 necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.

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.