A. Course information

Course number/section: CHEM 1305.001
Class meeting time: MTWR 05:00 – 06:55 p.m.
Class location: CS-115
Course Website: https://bb9.tamucc.edu/

B. Instructor information

Instructor: Dr. Narendra Narayana
Office location: Center for Science 208
Office hours: T/W/R 8 a.m. – 10 a.m. or by appointment
Phone: 825-3644
e-mail: nnarayana1@tamucc.edu
Appointments: please send email

C. Course description

This course is designed for students in non-science related majors. This one-semester course will cover basic concepts in chemistry and its influence on our day-to-day life. Chem-1305 is a natural Science component of the University Core Curriculum and is not a substitute for Chem-1311.

Course objectives: In this course students will learn:

• Sustainable practices for the future – recycling, ecological balance, Green Chemistry, and our responsibilities as citizens to protect our planet.

• Composition of air – essentials and pollutant components; Classification of matter – pure substances, elements, and compounds; Atoms and molecules; Ozone layer.

• Atomic structure and electromagnetic radiation; Ultraviolet radiation and its biological effects.

• The chemistry of global climate change – The greenhouse effect; Molecular shape and molecular vibration. Quantitative measurement of molecules and the mole concept.

• Thermal energy – combustion, fossil fuels, coal, petroleum, biofuels, and electricity.

• Water is necessary for life. Unique properties of water. Physical forces or molecular interactions – Hydrogen bonding and ionic compounds.
• The danger of acid rain. Acid-base chemistry. Steps to counter the threat of acid rain.

• Nuclear energy – Fission reaction – nuclear reactors – electricity. Radioactivity. Pros and cons of nuclear power.

• Chemical energy – batteries and electron flow. Renewable energy resources.

• Polymers – macromolecules, plastics,

• Design of drugs – Aspirin.

• Nutrition – trans-fats, carbohydrates, proteins, and vitamins.

This course shall provide a working knowledge on the impact of science specifically chemistry on our day-to-day life and the future. Students shall be better informed from a scientific perspective to influence policy making at the local and the international level. Students shall know the global nature of the impact of human activities through some of the scientific data presented in this course.

D. Pre-requisites: none (for non-science major)

Co-requisites: none

E. Required Textbook(s), readings and supplies


Other references: none

Supplies: None

F. Student learning outcomes and assessment

By the end of this course students should be:

1. Aware of the benefits of the sustainable practices and green chemistry principles.
2. Familiar with the composition of air, atmospheric pollution, and the importance of ozone layer in screening the energetic UV radiations.
3. Knowledgeable about atoms, molecules, compounds, mixtures, and radiations.
4. Able to recognize a variety of electromagnetic radiations including visible light
and UV radiations and their impact on biological systems.

5. Well informed about the wealth of available data in support of global climate change.

6. Knowledgeable about fossil fuels, biofuels, nuclear energy, and other forms of energy required for day-to-day activities.

7. Knowledgeable about the physical and chemical properties of water, its role in living systems, and water pollution.

8. Aware of the principles of the generation of nuclear energy, and its use in the military.

9. Knowledgeable about various forms of batteries and renewable energy resources.

10. Aware of the advances in chemistry leading to products such as plastics and drugs used to cure diseases.

Assessment of students learning is based on the lecture exams and quizzes throughout the semester as detailed below.

G. **Instructional methods and activities**

Lecture presentations, assignments, reading materials, and other course-related information will be posted on the black board. Lectures will be followed by a review of chapters, problem solving, and student interaction.

H. **Major course requirements and grading**

**Attendance:** Attendance is highly recommended as this is a science subject that requires working out problems and to understand the concept in its true perspective. That is to connect different aspects of chemical principles to understand a specific phenomenon. Irregularity inevitably leads to poor grade. Please arrive on time and remain in the class until the lecture is completed. Arriving later than 10 minutes after the start of the class or leaving early is not acceptable in the interest of the whole class. Since this course is a long session (2 hours), there will be a short intermission (10 minutes). Students who are late to the first session are advised to wait for the second session to join the class.

**Exams:** There will be two examinations in addition to a comprehensive final examination. Examinations will be predominantly multiple choices and may include short answers and brief calculations. All answers on exam scantron cards are final, so please fill in your answer choices on your scantron card carefully.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Points</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>100 pts</td>
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<tr>
<td>Exam 2</td>
<td>100 pts</td>
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<tr>
<td>Final Exam</td>
<td>100 pts</td>
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</tbody>
</table>
Exams and quizzes will take place during regular class time. In general, there are no make-up exams or quizzes. Please let me know ahead of time if you have a university-approved excuse, if at all possible, alternate arrangements can be made. We will not “drop” any of the examinations or quizzes in the calculation of your final grade.

**Course Grading:** The lecture component will count for 90% of the grade and the quiz/attendance component for 10%. The scale below indicates the minimum course score (out of a possible 100) required to obtain a particular grade. A combined grade for both lecture and quiz/attendance will be awarded for the course.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
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<tbody>
<tr>
<td>A</td>
<td>90</td>
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<tr>
<td>B</td>
<td>80</td>
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<tr>
<td>C</td>
<td>70</td>
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<tr>
<td>D</td>
<td>50</td>
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<tr>
<td>F</td>
<td>&lt;50</td>
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The course score is calculated by adding the lecture (90) and quiz/attendance (10) scores:

- **Lecture score:** \( \frac{(\text{exam points} + \text{quiz points}) \times 90}{300} \)
- **Attendance score:** \( \frac{\text{(points obtained)} \times 10}{\text{Maximum points}} \)

As noted above, there are 300 points possible in lecture from the two regular and one final examination, plus quiz/attendance score that accounts for 10% of the total grade.

**Study guidance:** I encourage students to prepare a short description (one or two pages) of the material covered in the class on the same day while it is still fresh in your memory. Read or at least skim through the material discussed in the previous class before attending the class. Because the class material builds on itself, you cannot afford to get behind. In line with the adage – “well begun is half done”, I urge students to keep up with the subject as we proceed through the semester. Do end-of chapter problems, come to class, and review your notes on a weekly basis.
I. Course content/schedule

Tentative Course Outline
*Disclaimer: This syllabus is subject to change*

<table>
<thead>
<tr>
<th>Date</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>July 05</td>
<td>Introduction/Chapter 1</td>
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<tr>
<td>July 06</td>
<td>Chapter 1</td>
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<tr>
<td>July 07</td>
<td>Chapter 2</td>
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<tr>
<td>July 11</td>
<td>Chapter 2</td>
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<td>July 12</td>
<td>Chapter 3</td>
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<td>July 13</td>
<td>Chapter 3</td>
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<tr>
<td>July 14</td>
<td>Chapter 4 &amp; Review session</td>
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<tr>
<td>July 18</td>
<td>Chapter 4 &amp; Exam 1</td>
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<td>July 19</td>
<td>Chapter 5</td>
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<tr>
<td>July 20</td>
<td>Chapter 5</td>
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<tr>
<td>July 21</td>
<td>Chapter 6 &amp; Review session</td>
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<tr>
<td>July 25</td>
<td>Chapter 6 &amp; Exam 2</td>
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<td>July 26</td>
<td>Chapter 7</td>
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<td>July 27</td>
<td>Chapter 7</td>
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<td>July 28</td>
<td>Chapter 8</td>
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<tr>
<td>Aug 01</td>
<td>Chapter 9</td>
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<tr>
<td>Aug 02</td>
<td>Chapter 10</td>
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<tr>
<td>Aug 03</td>
<td>Chapter 11</td>
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<tr>
<td>Aug 04</td>
<td>Review session</td>
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<tr>
<td>Aug 05</td>
<td>Final Exam (Comprehensive)</td>
</tr>
</tbody>
</table>

J. Course policies

**Decorum**: Please maintain **absolute silence** in the class, that is no whispering and cross talk during the lecture. The best way to encourage learning is to provide an environment conducive to listening, concentration, and discussion. As in any class, students are expected to maintain the highest standards of decorum and to conform to college-level standards of ethics and academic integrity. **Cell phone use and photography is prohibited in the class room. Please turn OFF your cell phone while in the class.** Electronic interruptions will NOT be allowed, and laptops are to be used only for the lecture material. Most of these involve common sense and courtesy, but please refer to the section on academic policies and regulations in the university catalog for a more thorough description of these expectations. All students are expected to treat other students and the instructor with due respect. If a student’s behavior breaches the general code, the student will be asked to leave the class and continued miss-conduct can lead to further disciplinary action. Please refer to the section on academic policies and regulations in the university catalog for a more thorough description of these expectations.
**Student responsibility:** Student should 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.

**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.