CHEM 1311-1B,1C, 1D General Chemistry I Online

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See Course for more contact information.

## Course Description

This course will focus on the fundamental principles of chemistry for majors in the sciences, health sciences and engineering. Topics will include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases and an introduction to thermodynamics and descriptive chemistry.

**Course Prerequisites:** You must meet the following Math and Chemistry requirements:

- Math Requirement:
  - College Algebra (MATH 1314), or a higher level math course, with a C or better ***OR***
  - 2 years of High School Algebra with a C or better
- Chemistry Requirement:
  - Chemical Principles (CHEM 1375), or a higher level chemistry course, with a C or better ***OR***
  - 1 year of High School Chemistry (IPC doesn't count) with a C or better

## Required Course Materials

- The textbook for this course is a modified version specifically for Lamar University.
  - Brown, T.L.; LeMay, H.E., Jr.; Bursten, B.E.; Murphy, C.J. *Chemistry. The Central Science,* 14th ed.; Pearson Education: Upper Saddle River, NJ, 2017.
- Mastering Chemistry Subscription – This is a required course material that can be purchased in conjunction with the textbook.
- Students who take distance courses via Blackboard will need to be responsible to have the following capabilities and Software:
  - High Speed (Broadband) Internet access is desirable
  - Computer with at least 512 mb memory
  - Word processor software (Compatible with Microsoft Word)
    - Open Office is a free program that is compatible with Microsoft Office (www.openoffice.org)
  - Adobe Acrobat Reader (http://www.adobe.com)
  - Adobe Flash Player
  - Java
  - Internet Browser with Flash capabilities

## Grading

| | |
|---|---|
| Homework | 25% |
| Exams (3) | 50% |
| Final Exam | 25% |

At the end of the semester, the amount of points earned will be divided by the possible number of points for each category. Each category will be weighted appropriately and then averaged to arrive at your final course grade.

| | | |
|---|---|---|
| Grading Scale: | 90 - 100% | A |
| | 80 - 89% | B |
| | 70 - 79% | C |

| | |
|---|---|
| 60 - 69% | D |
| 0 - 59% | F |

## Assessment

A committee of faculty members from the Department of Chemistry and Biochemistry will assess class submissions based on their critical thinking skills, scientific understanding, and the empirical and quantitative skills demonstrated

## Attendance and Make-up Work Policy

No make-up work will be accepted unless the student initiates prior arrangements that I subsequently approve. Students must show proof of extenuating circumstances, such as a note from a doctor, etc. Active participation is required throughout the fifteen-week course.

## Important Dates

| | |
|---|---|
| August 28, 2017 | First Day of Class |
| September 29, 2017 | Last Day to Drop without Academic Penalty |
| November 3, 2017 | Last Day to Drop or Withdraw with Academic Penalty |
| December 12, 2017 | Last Class Day |

## Online Web Conferences

To enhance student-to-student and instructor-to-student interaction, Online Web Conferences have been scheduled for every Thursday at 8 PM Central Standard Time. I will record each Web Conference so that students who are unable to participate can access, review and respond to our group discussions.

## Email Policy

Students may email me at cdbean@lamar.edu. Emails will be answered within 24 hours on business days (M-F). On weekends, emails may not be answered until the next business day.

## Learning Outcomes

Students who successfully complete the course will emerge with knowledge, experience and understanding of:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.
6. Solve stoichiometric problems.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions.
11. Determine the role of energy in physical changes and chemical reactions.
12. Convert units of measure and demonstrate dimensional analysis skills.

## Academic Integrity Statement

Lamar University expects all students to engage in academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in their academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to

disciplinary action. Disciplinary proceedings may be initiated against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion, and the abuse of resource materials.

*Plagiarism* shall mean the appropriation of another's work or idea and the unacknowledged incorporation of that work or idea into one's own work offered for credit.
*Collusion* shall mean the unauthorized collaboration with another person in preparing work offered for credit.
*Abuse of resource* materials shall mean the mutilation, destruction, concealment, theft or alteration of materials provided to assist students in the mastery of course materials.
*Academic work* shall mean the preparation of an essay, report, problem, assignment, creative work or other project that the student submits as a course requirement or for a grade.

Students are specifically warned against all forms of plagiarism, which include "purchasing, or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm." Plagiarism is defined as, "the appropriation and the unacknowledged incorporation of another's work or ideas into one's own offered for credit". Students seeking to avoid plagiarism should consult either the course instructor.

The course instructor will complete a thorough and impartial investigation of any instance of academic dishonesty. A student found guilty of academic dishonesty will be notified in writing by the instructor of the violation, the penalty, and the student's right to appeal the determination of dishonesty and/or the sanction imposed. Penalties for academic dishonesty in this course will result in either a lowered letter grade or failure of the course as determined by the instructor.

## Copyright Policy Statement

Copyright is defined as the ownership and control of the intellectual property in original works of authorship which are subject to copyright law. As an institution of higher learning that values intellectual integrity, Lamar University prohibits the distribution of published materials (print or electronic) in violation of copyright law.

## Netiquette (Online Etiquette) Statement

Please adhere to the same standards of behavior and professional respect online that you would follow in face-to-face communication with others, but most particularly when writing email and when taking part in collaborative and discussion board activities. Lamar provides access to network resources, including the Internet, in order to support learning and to prepare students for the 21st century world. Students, however, are expected to adhere to the *Lamar University Acceptable Use Policies when Using Networks*

- **Acceptable Use**
  Students must respect the integrity and security of LU's computer systems and network, and the privacy and preferences of other users. Responsibility for learning about and complying with LU's Acceptable Use Policy ultimately rests with the individual. The network may be used to download, copy, or store any software, shareware, digital media files or freeware, as long as the use complies with copyright law; licensing agreements, and campus policies such as storage space limitations and network bandwidth restrictions. The network may not be used for any activity, or to transmit any material, that violates United States or local laws.
- **Unacceptable use**
  The network may not be used for commercial purposes. Advertising and sponsorships on UW web sites is restricted. In addition, students may not permit other persons to use their usernames, passwords, accounts or disk space, or disclose their usernames, passwords or account information to any third party. Students may not log on to someone else's account, internet address, or other network codes, or attempt to access another user's files. Students may not create false or dummy accounts to impersonate someone else. Students may not try to gain unauthorized access ("hacking") to the files or computer systems of any other person or organization. Students may not impersonate another person by forging e-mail, web pages or other electronic media. Students who maliciously access, alter, delete, damage or destroy any

computer system, computer network, computer program, or data will be subject to disciplinary action by LU, and criminal prosecution as well. Students may not disrupt or attempt to disrupt network traffic, and they may not attempt to monitor or capture network traffic in any way. Finally, students may not intentionally create, store, display, print or transmit information that violates the university's Sexual Harassment Policy.

**Students with Disabilities Accommodation**

Lamar University is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is located in the Communications building room 105. Office staff collaborate with students who have disabilities to provide and/or arrange reasonable accommodations.

For students: If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact the DRC at 409-880-8347 or drc@lamar.edu to arrange a confidential appointment with the Director of the DRC to explore possible options regarding equitable access and reasonable accommodations. If you are registered with DRC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course.

**Federal Policies**

**Title IV Policy -**Each semester, every faculty member will be required to check attendance records, and then indicate any student who is no longer attending the class. The checked rolls will be signed by the faculty member and returned to the Registrar's office. In an online course, this is managed by turned in assignments and dates that the course was accessed.

**FERPA (Family Educational Rights Privacy Act of 1972):** Due to the privacy laws regarding student grades in FERPA a student's grades cannot be discussed with anyone other than the student – no one else including parents and/or friends. Student records maintained by Lamar University comply with the Family Education Rights and Privacy Act of 1974 as amended (PL93-380). Detailed information should be accessed through this link: https://sacs.lamar.edu/catalog/PrefMaterial/V.GenAcademicPol.htm#edurights.

**Other Issues**

The syllabus and grading policy may be revised if necessary. If a change occurs, you will be notified and a new syllabus will be posted.

**ON-LINE COURSE SUPPORT**

- If you are new to Blackboard, please see the tutorial at http://dept.lamar.edu/cde/cdepages/students.html
- Blackboard can be accessed directly at http://luonline.blackboard.com
- This course is being offered on-line via Blackboard to facilitate student access.
- The Distance Education Office will provide technical support for the course.
- There is 24 hour access for help through voice mail at the following Center for Distance Education number (**409) 880-7849**.
  Please use these resources to assist you with any technical problems that may develop.

## Course Outline and Suggested Readings

For each activity, you should read over the major topics covered in the activity from your text or reliable internet sources. For convenience, I have included the sections of the two suggested texts that deal with aspects of the activity. These topics can be easily looked up in any text that you may have.

| Activity | Chemistry, 13th Ed. Brown&LeMay |
|---|---|
| 1. Atoms and Subatomic Particles | 2.1-2.3; 2.5 |
| 2. Electrons and Orbital Energy Levels | 6.5-6.9 |
| 3. Periodic Trends in Elemental Properties | 2.5, 7.6-7.8 |
| 4. Bonding | 8.1-8.3,8.5 |
| 5. Electronegativity, Bond Polarity, and Dipoles | 8.3, 8.4 |
| 6. Simple Lewis Structures | 8.5 |
| 7. Molecular Representations, Covalent Molecule and Alkane Nomenclature | 2.8, 25.3 |
| 8. Complex Lewis Structures | 8.5- 8.7 |
| 9. Valence Shell Electron Pair Repulsion Model | 9.2 |
| 10. Molecular Shape and Molecular Polarity | 9.3 |
| 11. Matter and It Properties | 1.2-1.4 |
| 12. Ions, Ionic Compounds and Ionic Compound Nomenclature | 2.7, 2.8, 7.3 |
| 13. Balancing Chemical Equations | 3.1 |
| 14. Acids and Bases | 4.3, 16.1, 16.2 |
| 15. Some Simple Chemical Reactions | 3.2, 4.2, 4.3 |
| 16. Oxidation-Reduction Reactions | 4.4 |
| 17. Significant Figures and Units of Measure | 1.4, 1.5 |
| 18. Atomic Mass, Moles, and Molar Mass | 2.4, 3.3, 3.4 |
| 19. Stoichiometry and Limiting Reactants | 3.6, 3.7 |
| 20. Solutions, Concentration and Solution Stoichiometry | 4.5, 4.6 |
| 21. Water, Autoionization, pH Scale, and $[H^+]$ | 16.3, 16.4 |
| 22. Enthalpy | 5.2, 5.3, 5.5 |
| 23. Hess's Law | 5.6 |
| 24. Energy and Light | 6.1, 6.3 |