Syllabus - Fall 2014

Department: Chemistry and Biochemistry
Course Number/Section: CHEM 1312-01
Course Title: General Chemistry II
Professor: Dr. Kenneth Dorris
Office 121H Chm
880-8267
kenneth.dorris@lamar.edu
Office hours: MWF 9-10, Thur 9:30-11
{Other times by appointment}

Course Description


Prerequisites

{CHEM 1311 and CHEM 1111} or CHEM 1411; CHEM 1112 is recommended.

Required/Optional Texts and/or Course Materials

Chemistry, “The Central Science” by Brown, et. al. (Prentice Hall)

Course Outcomes

Learning Outcomes:

Upon successful completion of this course, students will:
1. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
2. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
3. Articulate the importance of intermolecular interactions and predict trends in physical properties.
4. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
5. Identify and balance oxidation-reduction equations, and solve redox titration problems.
6. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
7. Apply the principles of equilibrium to aqueous systems using LeChatelier’s Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
8. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
9. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.

**Core Curriculum Objectives:**

- *Life and Physical Sciences (critical thinking, communication, empirical and quantitative skills, teamwork)*

1. **Scientific Observations, Laws, and Theories**

   Students will prepare an essay explaining the relationship of scientific observations, laws, and theories using a course content relevant example suggested and agreed to by the instructors of all sections of the course. Faculty will use a rubric to assess scientific understanding, written communication skills, and critical thinking skills.

2. **Chemical Calculations and Meanings**

   Students will document the solution of a course content relevant chemical calculation problem suggested and agreed to by the instructors of all sections of the course. Students will interpret the meaning of the results obtained. Faculty will use a rubric to assess scientific understanding, critical thinking skills and empirical and quantitative skills.

3. **Chemical Use - Benefits and Hazards**

   Students will prepare an group presentation explaining the relative benefits and hazards of a contemporary, course relevant issue suggested and agreed to by the instructors of all sections of the course. Faculty will use a rubric to assess scientific understanding, understanding of the interactions of natural phenomena, communication skills, and teamwork.

**Classroom Management Policies**

*Disability accommodation:* It is the policy of Lamar University to accommodate students with disabilities, pursuant to federal and state law, and the University’s commitment to equal educational opportunities. It is the student’s responsibility to register with Lamar’s Disability Support Services (880-8347), In Communication Bldg. 105, as quickly as possible. Any student who feels s/he may need an accommodation based on the impact of a disability should contact the professor directly during the first week of the course.

*Academic Honesty:* Engaging in academic dishonesty as defined and described under Academic Affairs in the student handbook will result in immediate suspension from class and a course grade of F.
**Attendance:** Regular class attendance is important to the attainment of the educational objectives of the University. Attendance will be checked daily (see federal policies).

**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.

**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. This includes emails, voice mails, over the phone, answering services, etc. Therefore, the student must appear in person to insure identity and can only get their grade.

**Grading and Evaluation**

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<th>Exams</th>
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*Only calculators are permitted during exams. All other electronic devices such as cell phones, I pods, computers, etc. are not allowed.*

**MAKE-UP EXAM = FINAL EXAM**

The FINAL EXAM will be increased to compensate for the missed exam. (or if higher, the Final Exam will replace the lowest regular exam grade)

**THERE ARE NO OTHER MAKE-UP EXAMS**

**Grade:** Based on **Exams & Class Assignments**

- A .......... 90 - 100%
- B .......... 80 - 89%
- C .......... 70 - 79%
- D .......... 60 - 69%
- F .......... 0 - 59%

*See Official Final Exam Schedule*
Course Outline

Chap 10. GASES
Chap 11. INTERMOLECULAR FORCES, LIQUIDS and SOLID
Chap 13. PROPERTIES of SOLUTIONS
Chap 14. CHEMICAL KINETICS
Chap 15. CHEMICAL EQUILIBRIUM
Chap 16. AQUEOUS EQUILIBRIUM: Acid/Base
Chap 17. APPLICATIONS of AQUEOUS EQUILIBRIA
Chap 19. CHEMICAL THERMODYNAMICS
Chap 20. ELECTROCHEMISTRY