

**Introductory Chemistry II
CHEM 1407 (ONLINE)**

Western Texas College

I. Basic Course Information:

- A. *Course Description:* This course will mainly deal with the basic principles of chemistry. Fundamental concepts and problem-solving skills will be stressed. In this course, there will be a certain amount of memorization as well as learning fundamental concepts. However, a significant amount of lecture time will be spent on techniques in solving chemistry problems.
- B. *Prerequisites:* There are no official prerequisites. However, the student must be able to read, speak and write proficiently at the college level.

II. Student Learning Outcomes

- A. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
- B. Articulate the importance of intermolecular interactions and predict trends in physical properties.
- C. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
- D. Identify and balance oxidation-reduction equations, and solve redox titration problems.
- E. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
- F. 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.
- G. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
- H. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
 - I. Define nuclear decay processes.
 - J. Describe basic principles of organic chemistry and descriptive inorganic chemistry.
- K. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
- L. Demonstrate safe and proper handling of laboratory equipment and chemicals.

- M. Conduct basic laboratory experiments with proper laboratory techniques.
- N. Make careful and accurate experimental observations.
- O. Relate physical observations and measurements to theoretical principles.
- P. Interpret laboratory results and experimental data and reach logical conclusions.
- Q. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
- R. Design fundamental experiments involving principles of chemistry and chemical instrumentation.
- S. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

III. **Testing Requirements**

- A. All lecture quizzes are online and do not have to be proctored. Students are allowed to use their book and notes while taking lecture quizzes.
- B. The midterm and final exams must both be proctored. The student must take the exams at a local college or university's testing center. The student will be responsible for any fees incurred. Students are not allowed to use their textbook/notes/other resources while taking the proctored lecture midterm and final exam.
- C. The midterm and final lab exams do not have to be proctored.

IV. **Major Course Requirements**

- A. There will be a midterm and final exam.
- B. There are weekly quizzes.

V. **Information on Books and Other Course Materials**

- A. Introductory Chemistry Plus MasteringChemistry with eText – Access Card Package, 5th Edition. Tro. Prentice Hall. 2015 (ISBN-10: 0321910079; ISBN-13: 9780321910073)
- B. Custom Intro Chemistry Lab Kit (SKU: Kit4437)
- C. A scientific calculator is necessary.

VI. **Other Policies, Procedures and Important Dates**

- A. The WTC Catalog can be found by accessing the following web address: <http://www.wtc.edu/Information/publications.html>

VII. Course Organization and Schedule

Topic	Chapter
Liquids, Solids, and Intermolecular Forces	12
Solutions	13
Acids and Bases	14
Chemical Equilibrium	15
Oxidation and Reduction	16
Matter and Energy	3
Radioactivity	17
Organic Chemistry	18
Biochemistry	19

Disclaimer: As always, circumstances can prevent coverage of the material in this chronology and in the expected time frame

Last Modified: July 1, 2014