Eastfield College
STEM Division

Spring Semester 2015
General Chemistry I
Chem 1412-Section 43361
4 Credit Hours

Bishop Lynch High School  Science Hall  Room 116
Mon-Fri  11:44 – 1:14

Instructor:  Dr. Cecilia Sehr O.P.

Contact Information:
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Hours Available: Mon-Fri 7:30 AM – 4:00 PM

Course Description (from Eastfield Catalog):
CHEM 1411  General Chemistry I (4)
This is a Texas Common Course Number. This is a DCCCD Core Curriculum Course.
Prerequisite: One of the following must be met: (1) Developmental Mathematics of 0097
or higher or the equivalent placement scores and CHEM 1405  (2) Developmental
Mathematics 097 or higher or equivalent placement test scores and High School
Chemistry and Developmental Reading 0093 or English as a Second Language (ESOL)
0044 or have met the Texas Success Initiative (TSI) Reading standard.
Course Description: This course is for science and science-related majors. Fundamental
concepts of chemistry are presented including measurement and the metric system, the
history of chemistry, the mole concept, chemical reactions and stoichiometry, energy and
chemical reactions, states and properties of matter, the periodic table, chemical bonding,
atomic and molecular structure, gas laws, and concentrations of solutions. (3 Lec., 3
Lab.)
Coordinating Board Academic Approval Number 4005015203

Textbooks and Other Course Materials:
VonderBrink  Laboratory Experiments for Advanced Placement Chemistry 2nd Ed. ISBN
# 978-1-933709-45-1; Scientific Calculator; Quadrille Lab notebook; Safety Goggles
Developmental Courses

The Texas Success Initiative (TSI) is a statewide program designed to ensure that students enrolled in Texas public colleges and universities have the basic academic skills needed to be successful in college-level course work. The TSI requires assessment, remediation (if necessary), and advising of students who attend a public college or university in the state of Texas. The program assesses a student’s basic academic skills in reading, writing, and math. Passing the assessment is a prerequisite for enrollment in many college-level classes such as English 1301/1302, History 1301/1302, Math 1414, etc. Students who do not meet assessment standards may complete prerequisite requirements by taking developmental courses in the deficient area and passing them with a grade of C or higher. In some cases retesting will also be required. It is up to each student to be aware and informed about requirements that are subject to change.

Additional information is available from the TSI Office. https://www1.dcccd.edu/cat0910/admiss/tsi.cfm?loc=4

Student Learning Outcomes

To recognize instances of quantification in the life/physical sciences
To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry to communicate findings, analyses, and interpretation both orally and in writing.
To carry out quantitative procedures in a laboratory situation
To identify and recognize the differences among competing scientific models of the universe
To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics and values
To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

Additional Exemplary Educational Objectives

To understand and apply method and appropriate technology to the study of natural sciences.
To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.

Course Objectives:

The student will:
1) Understand the major principles of chemistry, be able to express, and interpret them utilizing relevant factual material, and make quantitative calculations based on an understanding of the mole concept.
2) Describe the relationship of the electron structure of atoms to elemental properties and to the periodic table.
3) Interpret chemical reactions and equations, and be able to write and use equations in quantitative, stoichiometric calculations.
4) Describe the electron arrangements in chemical bonding and relate them to bond properties, molecular geometries, polarity of molecules, and to the properties of compounds.
5) Explain the properties of gases and their relationship to the kinetic molecular theory of gases in terms of the Ideal Gas Law and be able to make calculations of gas behavior in reactions involving gases.
6) Describe energy relationships in chemical and physical processes, and calculate the energy released or absorbed in these processes.
7) Describe the properties of common elements and compounds.
8) Utilize the systematic method of naming compounds and writing formulas.
9) Calculate solution concentrations and perform gravimetric and volumetric analyses.
10) Define the terms oxidation and reduction and be able to write and balance equations involving oxidation and reduction.

Core Curriculum Intellectual Competencies:
1. Reading – the ability to analyze and interpret a variety of printed materials – books, documents, and articles – above 12th grade level.
4. Listening – analyze and interpret various forms of spoken communication, possess sufficient literacy skills of writing, reading – above 12th grade level.
5. Critical Thinking – think and analyze at a critical level.

Evaluation Procedures:
Examinations: 40%  
Laboratory Reports 25%  
Quizzes 25%  
Homework problems 10%  

Final Grade for course
First Quarter average 40%
Second Quarter average 40%
Final Exam 20%

Obtaining Final Course Grades Using eConnect
Final Grade Reports are no longer mailed. Convenient access is available online at www.econnect.dcccd.edu. Use your identification number when you log onto eConnect, an online system developed by the DCCCD to provide you with timely information regarding your college record. Your grades will also be printed on your Student Advising Report, which is available in the Admissions Office.

Eastfield College Email Policy
Faculty and students must have and use a DCCCD account for all correspondence relating to academic coursework. For information on setting up a DCCCD student email account go to: http://www.dcccd.edu/netmail/home.html

Course Outline:
Week 1  
Properties of solutions, including composition and vapor pressure (Chapter 11)  
Lab: Molar Mass by Freezing Point Depression
Week 2  Discussion of solution’s colligative properties and osmotic pressure (Chapter 11)  
Lab: Kinetics of a Chemical Reaction

Week 3  Integrated rate laws and reaction mechanisms (Chapter 12)  
Lab: Test on Chapters 11 and 12

Week 4  Equilibrium and the Equilibrium constant including Pressure (Chapter 13)  
Lab: The Determination of $K_{eq}$ for [FeSCN]$^{2+}$

Week 5  Solving Equilibrium problems; discussion of LeChatelier’s Principle (Chapter 13)  
Lab: Test on Chapter 13

Week 6  Discussion of the nature of acids and bases, acid strength, pH and calculating the [$H^+$] in weak and strong acids (Chapter 14)  
Lab: Determining the $K_A$ of weak acids

Week 7  Discussion of polyprotic acids, acid-base properties of salts, and Lewis  
Lab: Predicting and Verifying the Acid-Base Properties of Salts

Week 8  Discussion of common ion effect, buffers, titrations and pH curves (Chapter 15)  
Lab: Acid-Base Titration

Week 9  Comparison of Acid-base indicators, solubility products, precipitations And Qualitative analysis of Group I and II cations (Chapter 15)  
Lab: Test on Chapters 14 and 15

Week 10  Entropy and the 2nd law of Thermodynamics; free energy (Chapter 16)  
Lab: Preparation and Properties of Buffer Solutions

Week 11  Discussion of free energy and relation to equilibrium and work (Chap. 16)  
Lab: Test on Chapter 16

Week 12  Explanation of galvanic cells and reduction potentials (Chapter 17)  
Lab: Electrochemical cells

Week 13  Calculations of cell potentials, electrical work, using the Nernst Equation, And electrolysis (Chapter 17)  
Lab: Oxidation-Reduction Titration

Week 14  Nuclear Stability, Radioactive Decay, comparison of nuclear fission and Fusion (Chapter 18)  
Lab: Half-life of Cs-137

Week 15  Discussion of functional groups in organic compounds and nomenclature (Chapter 22)  
Lab: Synthesis and Melting Point Determination of Aspirin

Week 16  Final Exam covering Chapters 11-18 and 22.

**Attendance Policy:**
Students are expected to attend all classes. Attendance is taken at the beginning of each class and reported to the office. Excessive absences will drastically affect your ability to succeed in this class.

**Financial Aid Statement**
Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and
could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate after the drop date are also subject to this policy.

Financial Aid Statement for Distance Learning Classes
If you are receiving Financial Aid grants or loans and are enrolled in a Distance Learning class, you must show participation in this class prior to the certification date by either e-mailing or contacting the instructor or logging on to eCampus. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in your enrollment level and failing grades may require that you repay financial aid funds.

Repeating This Course: (Third Attempt to Enroll in a Course)
Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course. All third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in additional tuition to be charged. Developmental Studies and some other courses will not be charged a higher tuition rate. Third attempts include courses taken at any of the Dallas County Community Colleges since the Fall 2002 Semester. See Third Attempt to Enroll in a Course at: http://www.dcccd.edu/thirdcourseattempt/

Academic Honesty Statement
Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion.

As a college student, you are considered a responsible adult. Your enrollment indicates acceptance of the DCCCD Code of Student Conduct published in the DCCCD Catalog at http://www1.dcccd.edu/cat0506/ss/code.cfm

Academic dishonesty includes, but is not limited to, cheating on tests, plagiarism and collusion. Cheating includes copying from another student’s test or homework paper, using materials not authorized, collaborating with or seeking aid from another student during a test, knowingly using, buying, selling, stealing, or soliciting the contents of an unadministered test, and substituting for another person to take a test. Plagiarism is the appropriating, buying, receiving as a gift, or obtaining by any means another’s work and the unacknowledged submission or incorporation of it in one’s own written work. Collusion is the unauthorized collaboration with another person in preparing written work for fulfillment of course requirements. Academic dishonesty is a serious offense in college. You can be given a failing grade on an assignment or test, can be failed for the class, or you can even be suspended from college.

Food and Drink Policy
Food, drinks, and tobacco products are prohibited in Eastfield College classrooms.

Food and drink are not permitted in laboratories unless required for a documented medical reason.

ADA Statement
Students with a physical, mental or learning disability who require accommodations should contact the college Disability Services Office in C237. 972.860.8348 or email efdso@dcccd.edu. For more information: http://www.eastfieldcollege.edu/SSI/DSO/index.html
Religious Holidays
Absences for observance of a religious holy day are excused. A student whose absence is excused to observe a religious holy day is allowed to contract with the instructor to take a make-up examination or complete an assignment within a reasonable time after the absence.

Withdrawal Policy
If you are unable to complete this course, it is your responsibility to withdraw formally. The withdrawal request must be received in the Registrar’s Office by April 30, 2015. Failure to do so will result in your receiving a performance grade, usually an “F.” If you drop a class or withdraw from the college before the official drop/withdrawal deadline, you will receive a “W” (Withdraw) in each class dropped. For more information about drop deadlines, refer to the current printed Credit Class Schedule, contact the Admissions/Registrar’s Office at 972-860-7167 (Room C119), or contact the division office.

STOP BEFORE YOU DROP
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops.

Family Educational Rights and Privacy Act of 1974 (FERPA)
In compliance with the Family Educational Rights and Privacy Act of 1974 (FERPA), the College may release information classified as “directory information” to the general public without the written consent of the student. Directory information includes: (1) student name, (2) student address, (3) telephone numbers, (4) date and place of birth, (5) weight and height of members of athletic teams, (6) participation in officially recognized activities and sports, (7) dates of attendance, (8) educational institution most recently attended, and (9) other similar information, including major field of student and degrees and awards received. Students may protect their directory information at any time during the academic year. If no request is filed, directory information is released upon written inquiry. No telephone inquiries are acknowledged. No transcript or academic record is released without written consent from the student, except as specified by law.

DCCCD Emergency Operating Procedures
http://video.dcccd.edu/rtv/DO/emergency_dcccd.wmv

Classroom Etiquette
Cell phones are to be turned off during class. Phones will be confiscated if they go off during the class and turned into the Dean of Student’s office. They can be retrieved by contacting the Dean of Students.

The teacher and the students will respect each other at all times.
**Children on Campus**

The institution strives to protect an environment most conducive to teaching and learning for all enrolled students. Children who are taking part in organized scheduled activities or who are enrolled in specific classes are welcomed. Minor children, however, should not be brought to the institution unless closely supervised by their parent. Minor children should not be brought into classrooms, laboratories or other facilities of the college. This practice is disruptive to the learning process. In the case of an emergency where the student-parent has no alternative but to bring the child to campus, classroom faculty or the administrative heads of other units have full discretion as to whether a child may be allowed to quietly stay in the location. These individuals may require that children be removed by the student-parent from the setting if, in their opinion, the presence of the child is deemed to be disruptive to the learning process. For reasons of security and child welfare the institution will not permit unattended children to be left anywhere on the premises. Parents who have problems with childcare should visit the Counseling and/or Advisement Center to receive referrals to childcare services in the area.

*The instructor reserves the right to amend this syllabus as necessary.*