Department:

Chemistry

Course Description:

This course continues the study begun in PS 111 and is intended for students going into technological, scientific, engineering, or medical fields. The course is required in certain pre-professional programs, such as pre-medicine, pre-veterinary medicine, pre-dentistry, etc. Course topics will include crystals and solids, reaction kinetics, chemical equilibrium, solution chemistry including acid-base and complex-ion equilibria, thermodynamics, and electrochemistry. The course will also include a brief discussion of organic chemistry, biochemistry, and nuclear chemistry.

Course Competencies:

The learning outcomes and competencies detailed in this syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups for this course as approved by the Kansas Board of Regents. (Kansas Regents Shared Number Course and Title: KRSN Course CHM 1020/CHM 1021/CHM 1022 Chemistry II & Lab/Lecture/Lab.)

Upon completion of the course, the student should be able to:

1. Define and explain the general concepts, units, and nature of chemical facts, principles, and observations.
2. Explain the scientific laws and theories related to the interactions of chemical substances, including their properties and predictions of chemical behavior.
3. Apply scientific equations, laws, models, and computer simulations to calculate and estimate both qualitative and quantitative chemical phenomena.
4. Work efficiently, effectively, and safely in a laboratory environment.
5. Observe, summarize, explain, and evaluate laboratory data from experiments.

Course Content:

A. The chemistry of solids
B. Organic chemistry: fuels and materials
C. Thermodynamics: spontaneous processes, entropy, and free energy
D. Chemical kinetics
E. Chemical equilibrium
F. Equilibrium in the aqueous phase
G. The colorful chemistry of transition metals
H. Electrochemistry and electric vehicles
I. Biochemistry: the compounds of life
J. Nuclear chemistry

Revision Date: 04/03/2014 - Page 1 of 2
Learning Assessments:

Course competencies will be assessed by written exams, quizzes, class and homework assignments, lab work and reports, and final exam.

Instructional Materials:


Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students must complete the “Disabilities Self-Identification Form” at this link: https://highlandcc.edu/pages/disability-services.

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.