

COURSE DESCRIPTION

Dept., Number	Chem 106	Course Title	General Chemistry II
Semester hours	3	Course Coordinator	Walter E. Cleland, Jr., Associate Professor

Current Catalog Description

Continuation of Chem 105.

Textbook

John W. Hill, Ralph H. Petrucci, Terry W. McCreary, and Scott S. Perry. *General Chemistry*, 4th edition, Pearson / Prentice Hall Publishing Company, New Jersey 2005 (ISBN# 0-536-94551-9).

References

Course Outcomes

Upon successful completion of this course, the students:

1. understand the properties of solutions and measures of concentration
2. understand the concepts of chemical kinetics, including the theories of reactions and rate equations
3. understand the principles of chemical thermodynamics, including equilibrium constants, application of equilibrium constants, enthalpy, entropy and free energy
4. be able to apply the concepts of chemical equilibrium to various reactions, *e.g.* acid/base and precipitation reactions
5. understand redox reactions and be able to apply these reaction to electrochemical problems
6. be able to name and understand the structure of coordination complexes
7. have a general understanding of the descriptive chemistries of the main group elements and transition elements.

Relationship between Course Outcomes and Program Outcomes

The ABET/CAC criteria for computer science require 30 credit hours of science and mathematics appropriate for the discipline. The BSCS program meets this criterion by requiring 14 hours of natural science courses intended for majors in those fields, including a two-course sequence with associated laboratories in one field, and 18 hours of mathematics beyond the precalculus level. Chemistry 105 and 106 and their associated laboratories, Chemistry 115 and 116, form one option for satisfying the laboratory science requirement. The course outcomes are related to the expectations for the role of natural science in the BSCS curriculum.

Prerequisites by Topic

Chem 105 with a minimum grade of C.

Major Topics Covered in the Course

1. Solution properties
2. Chemical kinetics
3. Chemical equilibria
4. Acids, bases, and their equilibria
5. Solubility equilibria
6. Atmospheric chemistry
7. Entropy and free energy
8. Electrochemistry
9. Nuclear chemistry
10. Descriptive chemistry
11. Organic chemistry

Assessment Plan for the Course

The instructor assesses the student performance related to the course outcomes by using examinations, quizzes, and homework assignments.

How Data in the Course are Used to Assess Program Outcomes (unless adequately covered already in the assessment discussion under Criterion 4)

The conduct of this course is not governed by the ABET program faculty. No data are collected that are used to assess program outcomes directly.

Estimate Curriculum Category Content (Semester hours)

Science 3 hours