NORTHWEST FLORIDA STATE COLLEGE

Course Syllabus

Course Name: Chemical Science
Course Number: CHM1020
Summer 2025
CRN: 30013
Location: ONLINE
Class Meeting Times: ONLINE
Credit Hours: 3
Instructor Name: Dr. Kurt Teets

Course Curriculum

COURSE READINGS WILL BE DERIVED FROM THE WESTERN CANON. IN ADDITION AND TO THE EXTENT POSSIBLE, THE COURSE WILL PROVIDE INSTRUCTION ON THE HISTORICAL BACKGROUND AND PHILOSOPHICAL FOUNDATION OF WESTERN CIVIILIZATION AND THE AMERICAN DEMOCRACY. THIS COURSE PROVIDES STUDENTS WITH AN INTRODUCTION TO CHEMICAL PRINCIPLES AND APPLICATIONS FOR THE NON-SCIENCE MAJOR. STUDENTS WILL ENGAGE IN PROBLEM SOLVING AND CRITICAL THINKING WHILE APPLYING CHEMICAL CONCEPTS. TOPICS WILL INCLUDE THE SCIENTIFIC METHOD OF PROBLEM SOLVING, CLASSIFICATION OF MATTER, ATOMIC THEORY, THE PERIODIC TABLE, GASES, CHEMICAL REACTIONS, ENERGY, AND CHEMICAL BONDS.

STUDENT LEARNING OUTCOMES:
1. STUDENTS WILL BE ABLE TO DISTINGUISH BETWEEN PHYSICAL AND CHEMICAL PROPERTIES AND CHANGES.
2. STUDENTS WILL RECOGNIZE COMPONENTS OF GASEOUS CHEMISTRY.
3. STUDENTS WILL RECOGNIZE COMPONENTS OF AQUEOUS CHEMISTRY INCLUDING PROPERTIES OF WATER, SOLUTIONS, AND ACIDS AND BASES.
4. STUDENTS WILL CORRELATE THE DESIGN OF THE PERIODIC TABLE TO PERIODIC TRENDS AND PHYSICAL AND CHEMICAL PROPERTIES ELEMENTS.
5. STUDENTS WILL WRITE AND INTERPRET CHEMICAL FORMULAE AND WRITE BALANCED CHEMICAL EQUATIONS.

Goals

***NS-1**: The student will demonstrate an understanding of the scientific method, distinguishing between fact, scientific law, hypotheses, and theory; and recognizing the difference between scientific and non-scientific explanations.*

***NS-2**: The student will interpret data, given in problem form or obtained experimentally, in order to demonstrate problem-solving skills (critical thinking), develop testable explanations, or distinguish the difference between correlation and causation.*

***NS-3**: The student will demonstrate fundamental knowledge of the terminology, major concepts, and theories of at least one field within the physical sciences, and in the biological sciences.*

***NS-4:** The student will relate scientific discoveries and theories to broader areas of human concern.*

Objectives

- *Students will apply the law of conservation of matter and energy.*
- *Students will implement rules of significant numbers to all measurements.*
- *Students will explain the fundamental properties of matter including but not limited to atomic and*
  electronic structure, and periodicity.
- *Students will apply IUPAC rules of nomenclature.*
- *Students will predict molecular geometry and properties from bonding theories*
- *Students will predict and explain the products of chemical reactions (e.g., acid-base, oxidation-reduction, precipitation, dissociation).*
- *Students will learn unit conversions, stoichiometry calculations and the mole concept*

Student Expectations of the Course

Instructor will reply to emails within 48 College business hours
Instructor will post and maintain office hours
Instructor will provide a schedule of material to be covered on the syllabus
Instructor will communicate important information such as exam dates in a timely manner
Instructor will maintain updated gradebook in the Canvas LMS
Instructor will include a clear grading policy in the syllabus
Instructor will include contact information such as their email address and phone number
Instructor will return graded work in a timely manner
Instructor will post videos in the Canvas LMS on topics covered for students to watch at their leisure

How Student Performance Will be Measured

The student may be evaluated by the following methods:
Periodic online exams over lecture material in the Canvas LMS
Completion of online homework assignments via the Canvas LMS
Completion of extra credit quizzes in the Canvas LMS