

Introductory Chemistry I (CHEM 1106)



Credit: 1 semester credit hour (2 hours lab)

Prerequisite: MATH 1332

Co-requisite: CHEM 1306

Course Description

Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and allied health students.

Required Textbook and Materials

1. No laboratory manual, instructor provides materials.
2. Pens or pencils and calculator.
3. Safety glasses or goggles.

Course Objectives

Upon completion of this course, the student will be able to:

1. Understand and demonstrate laboratory skills related to chemistry principles. (SCANS: F1.4, F2.4, F3.5, F5.4, F6.4, F8.4, F9.5, F10.4, F11.4, F12.4, F13.4, F15.5, F16.3, F17.4, C1.4, C3.4, C4.1, C5.4, C6.5, C7.4, C8.1, C9.5, C10.1, C13.2, C14.5, C16.3, C18.5, C19.5, C20.4)

SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools*. In its research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies.

Course Outline

- A. Introduction
 1. Course description
 2. Course rules
- B. Laboratory Safety & Measurements
 1. Metric system
 2. Safety demonstration
 3. Volume, mass, & length measurements
- C. Physical Properties
 1. Density measurements

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- 2. Boiling points
- 3. Solubility of salts
- D. Nomenclature of Ionic Compounds
 - 1. Exercise in naming ionic compounds
- E. Reactions with Water
 - 1. Hydrates
 - 2. Efflorescence
- F. Oxygen Generation
 - 1. Reaction with peroxide
 - 2. Using gas laws
 - 3. Finding % Oxygen
- G. pH Measurements
 - 1. pH indicators
 - 2. Finding pH of unknown solutions
- H. Titration
 - 1. Titration procedures
 - 2. Analyzing for acids in 3 unknowns
- I. Hydrocarbons
 - 1. Solubility tests
 - 2. Density
 - 3. Acetylene generation
- J. Alcohols, Aldehydes, and Ketones
 - 1. Tests for aldehydes
 - 2. Alcohol tests
- K. Functional Groups
 - 1. Naming organic compounds
 - 2. Making model structures
- L. Tests for Nitrogen, Sulfur, & Halides
 - 1. Testing for oxygen, nitrogen, and halides
- M. Synthesis of Aspirin
 - 1. Aspirin synthesis
 - 2. Ferric Chloride test
- N. Make-up Lab

Grading Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

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Course Evaluation

1. Final grades will be calculated by averaging the grades for all laboratory assignments.

Course Requirements

1. Complete all laboratory assignments.

Course Policies

1. One missed laboratory assignment can be made up at the end of the semester.
2. No food, drinks, or tobacco products in class.
3. Proper classroom demeanor is expected.
4. Rules provided on the first day must be adhered to during all lab periods.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule

Week of	Topic	Reference
Week 1	Introduction and Rules	
Week 2	Laboratory Safety and Measurements	
Week 3	Physical Properties	
Week 4	Nomenclature	
Week 5	Reactions with Water	
Week 6	Oxygen Generation	
Week 7	pH Measurements	
Week 8	Titration	
Week 9	Hydrocarbon	
Week 10	Alcohols, Aldehydes, & Ketones	
Week 11	Functional Groups Worksheet	
Week 12	Tests for Nitrogen, Sulfur, & Halides	
Week 13	Aspirin Synthesis	

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Week of	Topic	Reference
Week 14	Make-up Day	
Week 15	Make-up Day	
Week 16	No test	