Department of Chemistry & Physics

SCI 1010. BASIC CONCEPTS OF PHYSICAL SCIENCE I. (3-3-0). Basic concepts of physics and chemistry. (May not receive credit for both Science 1010 and Chemistry 1030 or 1070.)

Text Integrated Elements & Dept. Chem. Custom Edition for NSU
Ludu; Pearson Publishing

Course Content

1. The Scientific Method

PHYSICS

2. Motion
   a. Speed, acceleration
   b. Newton's Laws of Motion, force
   c. Free fall, gravitation, satellite motion
3. Energy
   a. Work and power
   b. Kinetic and potential energy
   c. Momentum, relativity
4. Matter and Energy
   a. Temperature, heat
   b. Density, pressure, buoyancy
   c. Kinetic Theory of Matter, changes of state
   d. Thermodynamics
5. Electricity and Magnetism
   a. Electric charge, electricity and matter
   b. Electric current
   c. Magnetism and applications
6. Waves
   a. Wave motion, sound waves
   b. Electromagnetic waves, wave behavior

PHYSICS/CHEMISTRY

7. The Nucleus
   a. Atom and nucleus, radioactivity
   b. Nuclear energy, fission, fusion
   c. Elementary particles
8. The Atom
   a. Quantum theory of light, matter waves
   b. Hydrogen atom, quantum theory of the atom

CHEMISTRY

9. The Periodic Law
   a. Elements, compounds, periodic law
   b. Atomic structure, chemical bonds
10. Crystals, Ions, and Solutions
    a. Solids, solutions, acids and bases, pH
11. Chemical Reactions
    a. Combustion, chemical energy, fuels
    b. Reaction rates, oxidation and reduction
12. Organic Chemistry
    a. Carbon compounds
    b. Structures of organic molecules
    c. Organic compounds, chemistry of life

Course Goals

This course is intended:

1. To introduce the student to basic physics and chemistry principles.
2. To improve the scientific literacy of nonscience majors.
3. To allow students to relate abstract information to practical, everyday situations.
4. To encourage students to follow instructions.

Course Objectives

The student who successfully completes this course should be able:

1. To analyze situations involving mechanics, thermal energy, and harmonic motion.
2. To explore composition of familiar products by analyzing their labels.
3. To describe interactions among classes of matter.
4. To demonstrate an understanding of the nature of science.
5. To apply the principles of physics and chemistry to everyday situations.

It is the policy of NSU to accommodate students with disabilities, pursuant to federal law, state law, and the University's commitment to equal educational opportunities. Any student with a disability, who needs accommodation, for example in seating placement or in arrangements for examinations, should inform the instructor at the beginning of the course. Students with disabilities are encouraged to contact Disability Services, which is located in Kyser Hall, room 237, telephone 357-6950 or (TTD) 357-4393 or disability@nsula.edu.