

## Survey of Chemistry and Physics TCSU LBST 760

Note: this course must be approved for CSU GE-Breadth Area B1.

### A. Description

This course focuses on general principles and methods of scientific inquiry, includes fundamental concepts of both chemistry and physics, and highlights interrelationships between these two disciplines. It does **NOT** include astronomy, geology, meteorology, or oceanography because these topics are included in the Earth and Space Science course.

### B. Recommended Preparation

Strongly recommend completion of Intermediate Algebra (or written as “Second year algebra or eligibility for GE mathematics”) and credit or concurrent registration in GE mathematics.

### C. Prerequisites

None Specified

### D. Minimum Unit Requirement

3 semester units

### E. Course Topics

Must include but are not limited to:

#### **Structure and Properties of Matter**

- Basic atomic structure including the relationships between fundamental particles, the individual elements, and the Periodic Table
- Characteristics of the atomic, ionic, and molecular classes of matter
- States of matter and associated phase changes
- Basic characteristics of solutions, including acids and bases, and their relationship to the pH scale
- The nature of heat (thermal energy) and heat transfer (conductive, convective, radiant) and their relationship to temperature and temperature measurement
- Basic principles of chemical bonding and chemical reactivity

#### **Principles of Motion and Energy**

- Electromagnetic radiation (light), the electromagnetic spectrum and sources of light, with emphasis on wave phenomena including reflection and refraction
- Basic forces in the universe, including electrostatic, gravitational, magnetic, and frictional
- Forms of energy, including solar, chemical, electrical, magnetic, nuclear, and thermal
- Motion of objects as related through the concepts of position, displacement, speed, velocity, and acceleration

- Simple machines, allowing movement of heavy objects by means of the application of small forces over long distances, utilizing levers, pulleys, and ramps, to do work
- Conservation of energy resources in terms of renewable and non-renewable natural resources and their use in society

## **F. References**

Elementary Subject Matter Content Specifications for Science, Domain 1  
CSU Executive Order No. 405