

Southern Arkansas University Tech
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Online Course Information Form

Course Number: PHSC2023

Course Title: The Physical Sciences

Course Description: A course in the principles of physical science designed for general education. This course satisfies the 3 semester-credit-hour, science requirement for most schools. The lab is a separate course (PHSC2021).

Instructor: Steve Candler

Instructor Bio: AAS Colorado Technical College, BS University of Arkansas at Monticello, MA Southern Arkansas University

Prerequisite: eligible to take Composition I or have completed all appropriate Reading and Writing courses

Textbook Title: Physical Science, 8th Ed., Tillery

Learning Outcomes:

Goal A. Provide students a general Science base

Identify general scientific terms

Solve problems involving area, volume, and density

Describe the Scientific Method and use it to solve a problem.

List and properly use standard and derived English and Metric units of measurement throughout the course.

Goal B. Provide students a Physics base

Define displacement, speed, velocity, acceleration, force, momentum, impulse, and use them to solve problems.

List Newton's Laws of Motion and use them to solve problems.

Use the concepts of work, gravitational potential energy, and kinetic energy to solve problems.

Describe the relationship between heat and temperature using the kinetic molecular theory.

Describe the Fahrenheit, Celsius, and Kelvin temperature scales.

Define conduction, convection, and radiation.

Solve heat transfer problems including phase change problems.

Define terms associated with vibrations, waves, and sound.

Define/describe electrical current, voltage, resistance, power, Ohm's Law, and Watt's Law, and use them to solve problems.

Define terms associated with magnetism.

Describe the relationship between electricity and magnetism.

Define reflection, refraction, and dispersion.

Goal C. Provide students a Chemistry base

Identify and describe the major elementary particles in atoms.

Identify characteristics of assigned chemical families of elements.

Define/Describe atomic number, atomic mass, mixture, compound, molecule, isotope, chemical bond, and the Periodic Law.

Describe the parts of a chemical equation.

Describe Ionic, Covalent, and Metallic Bonds

Given a simple chemical equation, describe the chemical reaction.

Balance simple chemical equations.

Teaching Methodology, including description of interaction between student and instructor: entirely on line, self-paced, provided course deadlines are met

Methods of Testing: All on line, multiple choice and problems. Final exam at a proctored location.

Special Attendance Requirements (student contact with instructor, proctored examinations, etc.):

Students must maintain contact with instructor and make progress in the course at least every two weeks (every week during the Summer Session). Work must be submitted to the instructor before deadlines listed within the course. The final exam must be taken at an approved proctor site. Visit the college web site at http://www.sautech.edu/web_based_learning/policies/proc_sites.pdf for more detailed information.

Other Considerations (writing ability, assignments/projects, time considerations, etc.)

Students will need Internet access, MS Word, Adobe Acrobat Reader, and the ability to receive and send e-mail attachments within Blackboard.