BARTON COMMUNITY COLLEGE
COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number:	PHSC 1400
Course Title:	Physical Science
Credit Hours:	5 hours (3 hours Lecture, 2 hours Lab credit).
Prerequisites:	MATH 1821 Basic Algebra a grade of C or better OR having passed Module 6 in College Preparatory Mathematics OR appropriate math placement score.
Division/Discipline:	Academics Division/Physical Science
Course Description:	Physical Science is designed primarily for students other than those planning on mathematics or science majors. It is a lab course concerned with the concepts of matter and energy involved in the fields of physics, chemistry, astronomy, and earth science as well as an introduction into the applied mathematics pertaining to each of these fields.

II. INSTRUCTOR INFORMATION

III. COLLEGE POLICIES

Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

Plagiarism on any academic endeavors at Barton Community College will not be tolerated. The student is responsible for learning the rules of, and avoiding instances of, intentional or unintentional plagiarism. Information about academic integrity is located in the Student Handbook.

The College reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage.)

Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at **disabilityservices@bartonccc.edu**.

IV. COURSE AS VIEWED IN THE TOTAL CURRICULUM

Physical Science is an approved general education course at BCC, which can be used to fulfill degree requirements as a laboratory science course.

The application of scientific knowledge to daily life is emphasized and stress is placed on the fundamental principles and the scientific method of problem solving. The course requires a minimum of background mathematics and is not open to students enrolled in college physics or chemistry.

The learning outcomes and competencies detailed in this course syllabus meet or exceed those specified for this course by the Kansas Core Outcomes Groups project, and as approved by the Kansas Board of Regents – http://kansasregents.org/transfer_articulation.

V. ASSESSMENT OF STUDENT LEARNING

Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

<u>Course Outcomes, Competencies, and Supplemental Competencies</u>:

A. Explain the scientific method.
   1. Explain the typical processes used in science for developing new knowledge and for testing existing knowledge.

B. Describe the scope of the physical sciences.
   1. State the distinctions between physical sciences and biological sciences.
   2. Name branches of science that fall within the scope of the physical sciences. (eg physics, chemistry, meteorology, geology, and astronomy).

C. Interpret scientific data to demonstrate basic problem solving.
   1. Use algebra skills to solve problems involving linear equations ($y = mx + b$) or quadratic equations ($y = ax^2$).
   2. Read "story problems," convert them into appropriate mathematical form, and calculate numerical answers.

D. Explain everyday phenomena in terms of basic physical science concepts.
   1. Explain uniform motion and accelerated motion in terms of kinematic equations, Newton's Laws of motion, and momentum. Solve problems using these equations.
   2. State the law of Conservation of Energy and solve problems using equations for energy and work. Relate Conservation of Energy to the motion of objects and to

the operation of everyday objects (e.g. rollercoasters, light bulbs, solar cells, internal combustion engines, or wind turbines).

3. Describe the structure of atoms and their arrangement on the periodic table. Explain how atoms combine to form the materials in the world around us. Balance chemical equations.
4. Answer verbal questions and/or solve numerical problems from at least two other fields of physical science (e.g. geology, meteorology, astronomy, heat, electricity, light, sound, or nuclear physics).

E. Explain and critique science as presented in the media.
   1. Write or verbally present an essay, critique, or persuasive argument about a topic from physical science, using at least two different recent sources.

F. Perform measurements using physical apparatus.
   1. Accurately collect and record data for length, mass, time, and volume using tools such as metersticks, rulers, calipers, triple-beam balances, digital balances, or graduated cylinders.
   2. Accurately collect and record data for other physical properties like acceleration, force, electrical current, wavelength.

G. Analyze the collected data including appropriate treatment of errors and uncertainties.
   1. Create graphs from data, and relate the slope and intercept with physical quantities (such as speed, density or electrical resistance).
   2. Report data using either significant digits or explicit statements (e.g. using "±") to indicate uncertainty.

H. Generate and communicate conclusions based on the data and analysis for experimental investigations.
   1. Analyze data to find patterns or mathematical relationships.
   2. Complete laboratory reports that summarize the knowledge gained by doing the experiments.

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

VIII. REFERENCES

IX. METHODS OF INSTRUCTION AND EVALUATION

Since laboratory activities are integral to the learning outcomes of this lab science course, students must pass the laboratory portion of the class in order to successfully complete ("pass") the course.

X. ATTENDANCE REQUIREMENTS

XI. COURSE OUTLINE