

PHS 1510 – Physical Science Course Syllabus Fall 2021

Instructor

Dr. Michael Burkett (michael.burkett@biloxischools.net)

Course times

Monday - Friday 1:29 - 2:18

Catalog Description

(3 hrs). This course is an introduction to the basic principles of chemistry and physics.

Learning Objectives

Upon ideally successful completion of this course everyone will:

- Have a good understanding of the basic requirements for accurate recording of measurements.
- Know the basic theories and concepts dealing with motion, forces, momentum, energy, thermodynamics, waves, optics, electromagnetism, atomic and nuclear physics, elements, chemical bonding and chemical reactions.
- Use different techniques to measure and analyze data in laboratory experiments.

Course Requirements

1. **Attendance:** Students who miss more than 25% of PHS 1510 classes will not pass or receive credit for the course.
2. **Exam Format:** Exams may include multiple choice, fill-in-the-blank, matching, and discussion questions.

Text

Required: An Introduction to Physical Science (2016) by Shipman, Wilson, & Higgins, 14th Edition; Houghton Mifflin

Lab Manual

None required. Laboratory exercises will be posted in Google Classroom.

Methods Used to Determine Grades

Exams (4 exams)	50%	A = 90 - 100%
Participation		B = 80 - 89%
(top 18 grades for lab reports		C = 70 - 79%
and daily work)	50%	D = 60 - 69%
		F = 59% and below

Rules and General Information

- 1.** No cell phone use in class lecture unless given permission by the instructor. Cell phones may be used during activities for data collection and for research purposes.
- 2.** Attendance is required for both lecture and lab and will be taken during each meeting. Please see me if you have a scheduled absence or an emergency absence to make up missed work.
- 3.** Read the appropriate chapter in the textbook before coming to class.
- 4.** Lecture PowerPoint presentations, in class outlines (when appropriate), laboratory procedures and other supplemental materials for the course will be available online through Google Classroom.
- 5.** Materials not available online will be handed out in class or their locations and access made known during class time.

Statement on Academic Integrity

William Carey University seeks to create an environment that encourages continued growth of moral and ethical values, which include personal honesty and mutual trust. The University places the highest value on academic integrity and regards any act of academic dishonesty as a serious offense. Academic dishonesty is considered unethical and in violation of William Carey University's academic standards and Christian commitment. If such an incident occurs, students, faculty, and/or staff are obligated to initiate appropriate action. Depending upon the seriousness of the offense sanctions could include failure of the assignment, failure of the course, and could lead to suspension or dismissal from the University. A full explanation of the procedures for responding to instances of academic dishonesty is contained in the University's Policies and Procedures manual and in the student handbook, The Redbook.

Americans with Disabilities Act

Students with disabilities who are protected by the Americans with Disabilities Act of 1990 and require special accommodations should contact Student Support Services on the Hattiesburg campus, Student Services on the Tradition campus, and the Director of Pre-Nursing on the New Orleans campus.

Disaster Plan Statement

Students will follow the disaster plan as put forth the the Biloxi High School student handbook.

Week	Unit	Lab
1	Gravitational force → g → spacetime → black holes	Phet Gravitational force vs mass and vs distance
2	Magnetic force → field force Strong nuclear force → fission	Magnetic field intensity vs distance
3	Electric force → contact forces → weight vs. apparent weight	Phet Electric force vs charge vs distance
TEST 1		
4	Atoms → Isotopes → Radiation → Half-life	Penny Half-life lab
5	Atoms → Energy levels → Coulomb's Law → Periodic Trends → Periodic Table	Periodic Table and Trends
6	Atoms → Valence electrons → Ions → Compounds	Phet Compound Shapes and Structure
TEST 2		
7	N1L → speed → relative motion	Distance vs Time
8	N2L → acceleration → free fall, projectile motion, and circular motion	Air Resistance

	N2L → impulse-momentum theorem	
9 - 10	N3L → interactions → momentum and kinetic energy → phase changes → temperature → blackbody radiation → heat → friction → conservation of energy → thermodynamics	Phet Collisions Temperature Lab
TEST 3		
11	Work-energy → simple machines	Levers
12	Energy → circuits → battery → chemical reactions	Phet Balancing Equations
13	Circuits → Ohm's law → power	Phet Circuits
14 - 15	Circuits → generators → fossil fuel → chemical reactions → nuclear → fission → renewable resources → electromagnetism → transformers → domain theory	Phet - Energy
16	Electromagnetic spectrum → color → mirrors and lenses	Phet Refraction

17	Waves → surface → earthquakes and ocean	Phet Waves on a String
18	Waves → sound → frequency → music → speed of sound vs light → Doppler Effect	Light Intensity
TEST 4		

LABORATORY INFORMATION

Purpose: The purpose of the laboratory is to explore certain subjects in more detail, stimulate interest, employ student activity in the learning process, and acquire skills in the use of the microscope (laboratory) and scientific observation.

Laboratory. You will also be required to record your observations and results of experiments performed in the lab. We will usually conduct work in groups of two or four. Instructions will be given at the beginning of the laboratory.

Laboratory Conduct: No food or drink in the laboratory at any time! Please respect and take proper care of the laboratory equipment. The laboratory of necessity is a more relaxed atmosphere than lecture, however, a certain amount of decorum is required in order to work effectively.