

### Course Outline

**COURSE:** PSCI 1                      **DIVISION:** 10                      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Spring 2020                      **CURRICULUM APPROVAL DATE:** 10/8/2019

**SHORT TITLE:** PRIN PHYS SCIENCE

**LONG TITLE:** Principles of Physical Science

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
3	18	Lecture:	3	54
		Lab:	0	0
		Other:	0	0
		Total:	3	54

#### **COURSE DESCRIPTION:**

An introduction to the physical sciences for the non- science major. Attention is focused on fundamental laws of nature, their development and relation to the physical world. **PREREQUISITE:** Skills equivalent to those in an Elementary Algebra course. **ADVISORY:** English 280.

**PREREQUISITES:**

**COREQUISITES:**

**CREDIT STATUS:** D - Credit - Degree Applicable

**GRADING MODES**

L - Standard Letter Grade

**REPEATABILITY:** N - Course may not be repeated

**SCHEDULE TYPES:**

02 - Lecture and/or discussion

05 - Hybrid

72 - Dist. Ed Internet Delayed

**STUDENT LEARNING OUTCOMES:**

1. Describe and discuss numbers, units, and the Scientific Method.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

2. Identify, describe, compare, and contrast position, displacement, speed, velocity and acceleration.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

3. Identify, describe, compare, and contrast Newton's Laws.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

4. Identify, describe, compare, and contrast Potential, Kinetic, and Thermal Energy and the concept of Conservation of Energy.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

5. Identify, describe, compare, and contrast voltage, current, resistance, electric circuits, and magnetism.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

6. Identify, describe, compare, and contrast elements, compounds, and mixtures and the properties of each.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

7. Identify, describe, compare, and contrast the fundamental particles of matter and their role in the structure of an atom.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

8. Identify, describe, compare, and contrast the different types of atomic bonding.

Measure of assessment: Written homework and exams.

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

**CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS**

Curriculum Approval Date: 10/8/2019

HOURS: 3

TOPIC: Introduction to numbers, units, and the scientific method.

STUDENT PERFORMANCE OBJECTIVES: Identify and discuss the significance of accuracy of numbers, systems of units, and conversion of units. Identify and discuss the steps of the scientific method.

OUT OF CLASS ASSIGNMENTS: Homework and reading from text.

HOURS: 6

TOPIC: Kinematics

STUDENT PERFORMANCE OBJECTIVES: Identify, discuss, compare and contrast vectors and scalars, position, displacement, speed, velocity, and acceleration ..

Solve problems using one- and two-dimensional kinematics.

OUT OF CLASS ASSIGNMENTS: Homework and reading from text.

HOURS: 6

TOPIC: Newton's Laws.

STUDENT PERFORMANCE OBJECTIVES:

Identify, describe, compare, and contrast Newton's 1st, 2nd, and 3rd laws. Identify and discuss everyday applications of these laws. Solve problems using Newton's Laws applied to everyday situations.

OUT OF CLASS ASSIGNMENTS: Homework and reading from text.

HOURS: 9

TOPIC: Work and Energy.

STUDENT PERFORMANCE OBJECTIVES: Identify, describe, compare, and contrast work, mechanical energy, and thermal energy. Identify and discuss everyday application of these laws. Solve problems using Conservation of Energy applied to everyday situations.

OUT OF CLASS ASSIGNMENTS:

Homework and reading from text.

HOURS: 12

TOPIC: Electricity and Magnetism.

STUDENT PERFORMANCE OBJECTIVES: Identify, describe, compare, and contrast voltage, current, and resistance. Solve

simple circuit problems by applying Conservation of Charge and Conservation of energy to simple electric circuits. Describe, compare, and contrast electricity and magnetism, electric fields and magnetic fields. Compare and contrast gravitational fields, electric fields, and magnetic fields.

OUT OF CLASS ASSIGNMENTS: Homework and reading from text.

HOURS: 16

TOPIC: Atoms, Chemical

Bonding, and Chemical Reactions.

STUDENT PERFORMANCE OBJECTIVES: Identify and describe the structure of the atom and the Periodic Table of the Elements. Identify, describe, compare, and contrast

elements, compounds, mixtures, types and properties of chemical bonding. Identify, describe, compare, and contrast common chemical reactions. Identify, describe, compare, and contrast states of matter.

HOURS: 2

TOPIC: Final Exam.

### **METHODS OF INSTRUCTION:**

Instruction is by lecture, class discussion, lecture demonstration, small group problem solving and homework.

### **OUT OF CLASS ASSIGNMENTS:**

Required Outside Hours: 108

Assignment Description:

1. Regularly assigned homework that requires students to analyze and study pertinent text material, solved examples and lecture notes.
2. Regularly assigned homework that requires students to apply the principles and skills covered in class by solving related problems.
3. Writing assignments/reports on topics related to physical science.

**METHODS OF EVALUATION:**

Writing assignments

Percent of total grade: 15.00 %

Reading Reports

Problem-solving assignments

Percent of total grade: 35.00 %

Homework Problems

Objective examinations

Percent of total grade: 50.00 %

Exams

**REPRESENTATIVE TEXTBOOKS:**

Hewitt, Suchocki, and Hewitt. Conceptual Physical Science. Pearson, 2016.

ISBN: ISBN-13: 978-0134060491

**ARTICULATION and CERTIFICATE INFORMATION**

Associate Degree:

GAV B1, effective 200470

CSU GE:

CSU B1, effective 200470

IGETC:

IGETC 5A, effective 200470

CSU TRANSFER:

Transferable CSU, effective 200470

UC TRANSFER:

Transferable UC, effective 200470

**SUPPLEMENTAL DATA:**

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department:

CSU Crosswalk Course Number:

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: E

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000225966

Sports/Physical Education Course: N

Taxonomy of Program: 190100