

NC 219A: PHYSICAL SCIENCE A

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2021
Credits:	0
Total Contact Hours:	60
Lecture Hours :	60
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	120
Prerequisite:	Placement by a high school counselor.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Non-Credit Course

Catalog Course Description

This course will examine the eight study topics in physical sciences, such as motion, forces, and the structure of matter by using a quantitative mathematically based approach. Earth, the solar system, chemical reactions, the periodic equation, density, and buoyancy are additional topics that will be increased with mathematical rigor. The course format will include activity-based investigations with hands-on activities and concepts, and applications compliant with the adopted California State Standards to meet the minimum course requirements for high school graduation. 60 lecture hours.

Course Objectives

- Use a scientific calculator to compute values from laboratory experiments, calculate values in trigonometric functions, and estimate the percent error and accuracy of measurements.
- Use a compound telescope to research the sun and sunspots
- Understand the electromagnetic spectrum as it applies to light, the sun, and other stars.
- Describe the heavenly bodies, planets, stars, the sun, other galaxies, and comets
- Use computer simulations to explore and understand the principles of simple mechanics; these principles will include air resistance, friction, momentum, forces, and energy exchange.
- Demonstrate the ability to use a computer to generate graphs from data collected during the course of laboratory experimentation.
- Discriminate between speed, velocity, and uniform acceleration and compute values using simple algebraic formulas.
- Recognize the importance of measurement in scientific investigation and use appropriate metrics and unit analysis.
- Identify and use a wide range of scientific measurement tools including analog, digital meters, and balances, and various timing devices (stopwatches, clackers).
- Identify and use safe laboratory procedures.
- Recognize the importance of graphical analysis and demonstrate the ability to read and interpret graphs.

- Use the Periodic Table of Elements to identify the structure and properties of common elements.
- Identify the difference between physical/chemical properties.
- Demonstrate an understanding of electromagnetic fields, motion, velocity, acceleration, and terminal velocity.
- Use principles of optics to understand the compound telescope.
- Understand the relationship between the earth, planets, and the stars.

Major Course Content

1. The scientific method
2. Style use of a variety of physical science equipment
3. Correct use of calculators and computers as a scientific tool
4. Reading and interpretation of graphs
5. Physical science concepts
 - a. Electromagnetic fields
 - b. Simple electric circuits
 - c. Light and optics
 - d. Mechanics
 - e. Gravity
6. Chemistry
 - a. Structure of the atom
 - b. Chemical bonding
7. Applied mathematics
 - a. Simple algebraic manipulation
 - b. Unit analysis
 - c. Scientific (exponential) notation

Suggested Reading Other Than Required Textbook

Instructor supplied material

Examples of Required Writing Assignments

Lab reports

Examples of Outside Assignments

Daily homework and answer review questions

Instruction Type(s)

Lecture, Online Education Lecture