



SYLLABUS

CATALOG DESCRIPTION

This is the lab component of a laboratory science course for non-science majors. When taken together with the lecture course PHYS-121, it partially fulfills the requirements for an Associate of Arts degree. This course will not fulfill the lab science requirements for an Associate of Arts Degree. Topics include but are not limited to: classical physics; mechanics, heat, sound, optics, electricity, magnetism, and modern physics.

Prerequisites: It is strongly recommended that this course be taken at the same time as PHYS 121.

Semester Offered: Fall and Spring

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

Upon successful completion of the course, the student will be able to...

1. Describe the process of scientific inquiry.
2. Solve problems scientifically.
3. Communicate scientific information.
4. Apply quantitative analysis to scientific problems.
5. Apply scientific thinking to real world problems.

The student should also have a basic understanding of the following topics:

6. Mechanics.

7. Sound and waves.
8. Properties of matter and fluids.
9. Electricity and magnetism.
10. Heat.
11. Light.

Specific Learning Outcomes

Upon successful completion of the course, the student will be able to...

1. Graph Displacement vs. Time, Velocity vs. Time, and Acceleration vs. Time for an object moving down an inclined plane.
2. Use a simple "lever" system to calculate the mass of an object.
3. Calculate the heat capacity of various metals using calorimeter measurements.
4. Find the volume and density of an irregular shaped object using Archimedes' principle.
5. Calculate the stiffness constants of a spring and a rubber-band using Hooke's law.
6. Determine the speed of a wave using the general properties of waves.
7. Create and use an electromagnet, and determine its magnetic field direction.
8. Build a simple DC circuit and perform voltage and current measurements.
9. Calculate the resistive properties of a light bulb and resistor using Ohm's law.
10. Study the properties of concave and convex lenses.