

Introduction to Physics

Providence Extension Program

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Required Texts & Materials

- *Physics: A First Course (2nd Edition)* by Tom Hsu
 - 1 binder with loose-leaf paper or spiral notebook
 - Pencils and Erasers
 - Scientific Calculator with square root and exponent functions
 - Cell phones may not be used as calculators during class
 - 9 x 12 Envelopes to return tests taken at home
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Class Mission

Introduction to Physics is designed to help scholars understand the fundamental laws that govern God's creation while developing scientific reasoning, mathematical problem-solving, and critical thinking skills. Throughout the year, scholars will explore motion, forces, energy, electricity, waves, light, and other foundational concepts through demonstrations, experiments, discussions, and real-world applications.

Our goal is not simply to memorize formulas, but to understand the principles behind them and recognize the order, consistency, and design found throughout the world around us. Scholars will learn through guided instruction, worked examples, classroom demonstrations, collaborative discussions, laboratory activities, and problem-solving.

Course Objectives

By the end of this course, scholars will be able to:

1. Develop an understanding of the fundamental principles and laws of physics.
2. Apply physics concepts to explain and analyze real-world phenomena.
3. Collect, record, and interpret data through laboratory investigations and demonstrations.
4. Solve physics problems using scientific reasoning, logical thinking, and appropriate mathematical methods.

5. Communicate scientific observations, experimental results, and problem-solving processes clearly and effectively.
6. Apply algebraic reasoning to analyze and solve quantitative physics problems.
7. Interpret graphs, vectors, and mathematical models used to describe physical systems.
8. Describe and analyze motion from different frames of reference.
9. Apply Newton's Laws of Motion to predict and explain the behavior of objects.
10. Use the principles of conservation of energy and momentum to analyze physical interactions.
11. Investigate electricity and magnetism by examining the behavior of electric charge, circuits, and electromagnetic phenomena.
12. Recognize the order, consistency, and design within God's creation through the study of physics and appreciate how scientific discovery deepens our understanding of the natural world.

Course Format

Each lesson follows a four-step learning process:

1. **Pre-Class Reading & Notes** – scholars preview the lesson and record key concepts.
2. **Class Instruction** – New material is taught through examples and guided practice. Scholars are expected to take notes during class and to copy examples.
3. **Homework Practice** – scholars reinforce concepts through independent work at home.
4. **Review & Assessment** – scholars participate in review before tests then complete chapter tests at home proctored by a parent or guardian.

Class Expectations

- Arrive on time and prepared with all required materials.
- Participate actively in class discussions, demonstrations, laboratory activities, and problem-solving exercises.
- Take organized notes during instruction and record important formulas, concepts, and examples for future reference.
- Ask thoughtful questions and contribute respectfully to classroom discussions. Curiosity and critical thinking are encouraged.
- Be respectful to the instructor, classmates, classroom materials, and laboratory equipment at all times. Follow all classroom and laboratory safety procedures and use equipment responsibly.
- Disruptive or disrespectful behavior will result in removal from the class and placement in Study Hall for that session.
- Attendance is essential to maximize learning.
- In case of absence, parents may email the instructor for an excused absence, which may exempt the scholar from the lab activity.

Test & Assessments

A test will be emailed at the end of each chapter and completed at home under parent or guardian supervision. Tests must be taken in one sitting and completed independently. Notes, textbooks, calculators (unless specified), AI tools, and outside assistance are not permitted.

Scholars should show all work on the same or on a separate sheet of paper, which must be stapled to the test. Partial credit may be awarded when work is shown. **Tests will be graded for accuracy by the tutor.** Completed tests must be returned in a sealed envelope signed across the seal by a parent or guardian.

Homework Expectations

Physics is learned through consistent practice. Scholars should expect approximately **45–60 minutes of homework** on most non-PEP school days. Homework will be graded for **accuracy**, not simply for completion. Scholars should carefully review their work before submitting assignments, checking calculations, formulas, units, and final answers for errors. Developing the habit of finding and correcting mistakes is an essential part of scientific thinking and problem-solving.

Scholars are expected to **show all work**, include the appropriate **physics formulas**, and write final answers with the **correct units**. Credit may be reduced when work is not shown or units are omitted, even if the numerical answer is correct. If a scholar encounters a problem or concept they do not understand, they should make an honest attempt to solve it and clearly mark the question or write a brief note describing where they became confused. Scholars are encouraged to bring these questions to class so we can review them together.

Parents are encouraged to support this process by ensuring homework is completed independently, encouraging scholars to show all work, use appropriate formulas and units, and check their answers before submitting assignments.

Laboratory Activities

Physics comes alive through observation and experimentation.

Throughout the year scholars will participate in demonstrations and hands-on laboratory activities designed to reinforce classroom concepts. Scholars will collect data, analyze results, apply scientific reasoning, and communicate conclusions using appropriate scientific vocabulary.

Extra credit opportunities will be available for each quarter throughout the school year and applied to each quarter's final grade.

Grading Policy

Grades will be posted in the online gradebook as soon as possible.

- Work not submitted will be recorded as a zero until received.
- Late Work Penalties:
 - 20% reduction for the first PEP day late
 - 30% reduction for the second PEP day late
 - No work accepted beyond 2 PEP days late
- Each scholar will receive **two Grace Passes** for the school year. A Grace Pass may be used in place of a missed **homework assignment** and receive full credit.

Grading Scale:

90-100	= A
80-89	= B
70-79	= C
60-69	= D
≤ 59	= F

Grading Breakdown

- 40% – Tests
- 30% – Homework
- 20% – Labs
- 10% – Participation

Cell Phone Policy

- PEP requires that no cell phones be carried into class.
- Violations will result in a deduction of class participation points.
- Cell phones will be taken from scholars and given to Study Hall monitors or Administrator to be returned by the end of day.

Absences

- Assignments are due on the date posted in the Pacing Guide.
- For an excused absence (with a parent email on or before class), work may be submitted upon return with no penalty.
- Unexcused absences will incur late penalties.

My goal is to create a classroom where scholars are encouraged to ask questions, think critically, solve problems confidently, and develop an appreciation for the physical laws that govern the world around them. Together, we'll discover how the study of physics reveals the consistency and beauty of God's creation.

Dr. Charlotte Singletary, PT, DPT
Introduction to Physics Instructor

Parent & Scholar Acknowledgment Form

By signing below, both the scholar and parent/guardian acknowledge that they have received, read, and understood the course syllabus and expectations for Introduction to Physics.

We understand that this course is designed to develop scientific reasoning, critical thinking, and problem-solving skills while exploring the fundamental laws that govern God's creation. We agree to uphold the academic, behavioral, and integrity expectations outlined in the syllabus.

Should any questions, concerns, or academic challenges arise during the school year, we agree to communicate respectfully and promptly with the instructor so that we can work together to support scholar success.

Scholar Name (Print): _____

Scholar Signature: _____

Date: _____

Parent/Guardian Name (Print): _____

Parent/Guardian Signature: _____

Date: _____

Parent Preferred Contact Email or Phone: _____

Please return this signed form to your instructor.