apologia

Live Classes

Exploring Creation with Physics

Mr. Dan Martin, M.S.

mrmartin@apologia.com

Syllabus

2025-2026

Personal Note from Instructor:

Welcome to high school physics! I'm Mr. Dan, and I'll be your guide as we explore the laws that govern the energy of the created universe and how it has been placed into motion. Having taught hundreds of students just like you, I can't wait to spark your passion and wonder for the incredible laws that God uses to make it possible for you to move around every day.

Recommended Grade Level:

10th, 11th, or 12th grade

Prerequisites:

It is recommended that enrolled students have completed at least **Algebra I** and **Geometry**. It is possible to take geometry concurrently as long as the student has learned trigonometry prior to "Week 5" of this class. Chemistry is *not required* prior to taking physics but is *recommended*.

Live Lecture Date & Time:

- Section 1: Tuesdays from 1:30 P.M. – 3:00 P.M. ET
- Section 2: Wednesdays from 10:00 A.M. – 11:30 A.M. ET

NOTE: The instructor does not require attendance of the live lectures but highly recommends students attend as many of the live lectures as possible to take advantage of live Q&A. Lectures are recorded and posted on the course Canvas page under the associated week and module. If you miss a lecture, please watch the recording. You can also use the recording for review as you prepare for the online exam.

Description:

This course is designed to introduce high school students to the essential principles of physics and provide a foundation for future collegiate studies.

At the core of our course lies experimentation and problem-solving. You'll be challenged to think critically about real-world problems using the scientific method and experimentation. With about 30 hours of laboratory work, you'll have ample opportunity to explore the practical side of physics. You'll be able to conduct these experiments at home using everyday household items or easily obtained materials from a local hardware store. These experiments will aid in your understanding of the world around you, including the study of velocity, acceleration, free fall, two-dimensional motion, torque, Hooke's Law, periodic motion, and the law of reflection. Throughout the course, you'll hone your skills in technical writing as you work on writing formal laboratory reports and revisions with your teaching assistant (TA) and instructor.

Our course structure is designed to help you succeed. Each week, you'll read the textbook and answer “On Your Own” problems before attending a 90-minute live lecture. During these sessions, we'll explore some of the more nuanced points of the material, providing insights that will help you master the subject matter. Outside of class, you'll have ample opportunity to engage with other students and the instructor through our class discussion board and class Discord server.

Required Class Materials:

Students should have obtained all the course materials listed below prior to the first week of class:

- Exploring Creation with Physics (ECP), 2nd Edition, Wile
- Solutions and Tests for Exploring Creation with Physics, 2nd Edition
- All laboratory materials (listed in the book’s appendix)
    - Purchase as much of this in advance as you can to minimize trips to the store.
- Any 2 or 3 function scientific or graphing calculator
- Any word processing program (e.g. Microsoft Word)

Note, there is no official Apologia student notebook for this course. Students should use a traditional spiral notebook or binder.

Course Topics & Progression:

Throughout the course, we'll cover an array of exciting topics, ranging from the scientific method, scientific writing, and calculator usage to units, measurement, one-dimensional and two-dimensional motion, Newton's laws, gravity, work and energy, momentum, periodic motion, waves, optics, electrostatics, electrodynamics, electrical circuits, and magnetism.

We will spend 2 weeks on each of the 16 modules within this curriculum. Every Monday the instructor will post a Canvas announcement that gives students reminders of what they should be working on. Each week students will either attend a 90-minute live lecture for their registered section or watch a recording of the lecture. Before lecture students are expected to read the module, do experiments, work “On Your Own” problems, and take notes so that they can ask informed questions during live lecture. Note, we will not reserve class time for doing the experiments on camera due to time and logistical constraints, but questions are welcome if clarification is needed.

In the second week of each module, students are required to complete the study guide to prepare for the exam. Physics relies more on logic than memorization, so practicing with extra problems is recommended. There are optional practice exams in the solution manual, which can be used for studying. At the end of each module students will complete an online exam through our class Canvas portal. The online exams have no time limit and require a proctor. Students may also reference a crib sheet prepared on a standard piece of paper during the exam. Graded exams will be returned with instructor or teaching assistant feedback within two weeks.

Assignment Structure:

Students will complete the assignments detailed below during the year. These will all be submitted and graded through our class Canvas portal.

1. Homework Notebooks

   As students work through this course, they are required to keep a detailed notebook. This notebook both acts as the student's primary homework assignment and serves as a record for your completion of a physics course with a laboratory component. This notebook can be either the official Apologia companion Student Notebook or a traditional spiral notebook.

   At the end of each quarter (every 4 modules) a parent or guardian will check the student's notebook for ***completion*** of the items outlined below:

   Reading & Class Notes
   Students should show evidence that they are taking notes while reading and attending lecture. Highlighting is not an acceptable substitute for taking notes. Taking notes is a proven method of learning. Physics can be quite challenging so most students will need detailed notes to succeed.

   Work & Answers to Problems in the Textbook
   Each module students should complete and show detailed work for all the On Your Own (OYO) questions and the study guide (review & practice problems). Students are expected to ***self-correct*** their work using the "Solutions and Test Manual" to check for comprehension. Parents, please ensure that students are *not doing the initial work directly out of the solution manual*.

Experiment Notes

Students are ***required to do and take notes on all the experiments*** in the book. These experiments are designed to be easily and safely done at home. For each experiment, you should answer the following questions in whatever notebook or binder that you're keeping:

a) Label the entry with a title, date, and your name
b) What was the purpose (the goal) of the experiment?
c) What were your results? (Include any recorded data or calculations)
d) What do the results indicate?
e) Can you conclude anything?
f) What did you learn from the experiment?
g) What does the experiment demonstrate about the book concept being explored?

2. Online Module Exams

At the end of each module, students will take an online exam through our class Canvas portal. Exams consist of two parts: a computer-graded multiple-choice section and a worksheet section that is manually scored by the instructor or teaching assistant. Partial credit is available to the student for showing detailed work on the worksheet section.

These exams are closed book and students are not permitted to access outside web resources during the assessment. Students may use a 2 or 3 function calculator and a crib sheet prepared in advance on a standard piece of paper. Exams must be proctored and signed by a parent, guardian, or approved adult exam proctor to ensure academic integrity. Of the 16 module exams, the *lowest two scores will be dropped* automatically from the student's overall grade.

3. Syllabus Quiz

At the beginning of the year students will take a 50-point online quiz over the content of this syllabus and the course calendar. Students may look anything up during this assessment or even work with a friend. You have 3 attempts to get the highest score possible on it!

4. Formal Laboratory Reports
   This course will help prepare students for long form laboratory reports expected by college science courses.

   Students will complete a total of three formal laboratory report assignments over the course of the year that will increasingly rely on the student's own ability to compose a scientific report. Each of these reports features a video pre-lab that will help prepare students to perform the associated experiment accurately.

   The first report is a tutorial, which teaches the full reporting process to the student through interactive lessons that include videos and examples.

   The second report features a video lecture that helps students compose a full-length report with my guidance.

   By the time the students reach the third report, they will have learned the skills needed for the assignment, which they will complete on their own without guidance beyond the pre-lab.

   The instructor or teaching assistant will provide notes in the form of a rubric on the student's first submission. The student may then review these notes, revise, and submit the report a second time for a regrade.

Grading:

The point breakdown for assignments is summarized in the table below:

Activity	Points
1x Syllabus Quiz	50
16x Online Module Exams	700 (50 each, lowest 2 dropped)
3x Formal Lab Reports	150 (50 points each)
4x Quarterly Notebook Checks	400 (100 each)
Total Points	1300

At the end of the year, students will be provided with a standardized grade out of 1300 points. I have set Canvas to *suggest* an associated letter grade to assign your student. However, please note, *you are the legal homeschool entity* and responsible for all official reporting.

Extra Credit

The instructor reserves the right to offer or not offer extra credit opportunities. Extra credit will only be offered to the entire class population and not to individuals upon request. **Retaking exams is not offered in this course**.

Each quarter students can earn 5 extra credit points for using the Canvas discussion board in a helpful way. Some ways that students can earn this credit include explaining a concept, sharing a helpful video, or creating a module relevant meme (these are posted in a pinned thread with instructions). You do not receive points for asking questions.

Each module will contain a "Mental Awareness Check" or MAC for short. The MAC is a random "password" that is provided during a lecture, activity, set of instructions, announcement, or discussion board post. If students find the word and provide it at the end of each module exam, 1 point of extra credit is rewarded. The MAC should encourage student engagement in lectures and minimize distractions during class. Students should never ask the instructor or other students what the MAC for the module is.

Due Dates and Late Policy:

This course is scheduled, and all students are expected to turn assignments in **before** deadlines. The course calendar is available for download at the top of the module menu of our course Canvas portal. This calendar lists all live lecture times and assignment due dates for the entire year. All live lecture times and due dates will be communicated in **eastern time (ET) zone**. Extensions will not be provided due to a time zone difference, so please manage your time and work accordingly.

Late work will be accepted with applied late penalties for up to four weeks following the calendar deadline. After four weeks, late work will **no longer be accepted** by the course instructor. Whenever an assignment is late by any amount of time (even 1 minute), a **late penalty of 10%** will be applied. For every additional week that an assignment/exam is late, an **additional 10% penalty** will be applied.

Totally cool hidden syllabus secret: If you email me (mrmartin@apologia.com) a photo of a cute otter prior to August 31st, I will give you 5 points of extra credit. Please do not share this secret with anyone. I trust you to be super cool about this. Welcome to the otter club!

Parents can request extensions on behalf of their student. **All extension requests must be received by Friday at 5 pm ET.** Extension requests may be requested over the weekend, but the instructor may not reply until noted office hours. If the extension is approved, all late penalties will be waived for the approved extension window. The course instructor reserves the right to deny extension requests.

Student Conduct:

Academic Dishonesty

Academic dishonesty is any type of cheating that occurs on any exercise related to this course. *Any type of cheating will not be tolerated.*

Cheating includes but is not limited to copying homework, falsifying reasons for needing an extension, copying other students' exams/homework/answers, impersonating a parent on a signature form, having someone else login to a Canvas/Zoom account to complete material on a student's behalf, or plagiarizing material someone else has written and claiming it as your own.

All course assignments must be written in your own words. Plagiarism, including verbatim copying of text from the internet and using intellectual property without appropriate citation is not acceptable. Plagiarism includes paraphrasing information from a source and not citing it. Be sure to cite any information that you did not conceive for the first time as a scientific pioneer!

Assignments that have been cheated on will receive 0 points and the parent will be notified. Apologia reserves the right to remove a student from a course for reasons of academic dishonesty.

Class Behavior

1. Be respectful and be safe for yourself and others
2. Join class with your first and last name (no nicknames or memes)
3. All chat on Zoom, Canvas, and Discord must be school appropriate
4. If you have a question, either digitally raise your hand or wait until the instructor checks in and asks for questions
5. Please ask logistical questions about assignments and due dates outside of live class on our Canvas discussion board, Discord, or by email
6. Do not dox (find and share personal contact information) other students

Instructor Availability for Questions:

This Apologia Live Class works differently than a traditional in person class. You should read the textbook and work problems on your own before class as your first exposure to the material. This way, class time can be used for more complex topics and answering questions. We have one 90-minute lecture per week, so students should come to live class prepared with questions and be ready to supplement their studies with reading and problem-solving outside of class.

Outside of class, the instructor is available to help students with questions through the Canvas discussion board, class Discord server, or by email **Tuesday through Friday from 8:00 A.M. until 5:00 P.M. ET**. If a message is received outside of these hours, the instructor will reply to you as soon as possible upon returning. Please note, *personal tutoring is not a service included through ALC.*

Students are encouraged to ask content questions on either the Canvas discussion board or on the class Discord, a free chat platform used by the instructor for this course. Doing so allows other students to read the instructor's answer and benefit from it.

You are encouraged to join the class Discord, which is intended to give students a space to collaborate, discuss material, and build community outside of live class. Students are also encouraged to use this space to organize study groups with fellow students. The instructor moderates the space to help keep the students safe. Utilization of the Discord is completely *optional*, and all participants must complete the permission form found on Canvas with their parent/guardian prior to joining.