



**Grade:** 12<sup>th</sup>

**Teacher:** Mr. Eric Crespo (eric.crespo@gmail.com)

**Textbook:** Holt; Physics; Serway, Faughn; (2012)

**Materials required:** Notebook, pencils, erasers and loose leaf paper. Calculators will be used in class and on tests when directed by the teacher. Phones, iPods, mp3 players, or any other devices are not allowed as calculators. Any other materials required will be requested with, at least, five (5) days of prior notice.

**Course Description:** The Physics course is designed to teach students the fundamentals and applications of physics in a constantly changing world. It provides many aids to for the students to grasp these concepts. Some aids are the overviews, pictures, diagrams and illustrations. It also provides a section of chapter reviews and extra problems for the students benefit. The book also provides demonstrations, in text labs, lab manual, and study guide to enrich their learning experience.

Throughout the year, this course will be focused on learning how essential the study of physics is in our everyday life. Some of the topics to be discussed are: acceleration, two dimensional analyses, Newton's laws, Work, Energy, Momentum, Light, Electricity and Magnetism, amongst others. We will also learn in many about its many applications and crossovers towards other sciences. Our physics course will help the student learn the foundation of physics and help to understand and appreciate the world around them.

**Grades:** Report cards and progress reports will be implemented as per School Regulation. Grades will be comprised of the following components:

- a. **Tests:** Tests will usually cover an entire chapter or two. I may review all material prior to each test. Some tests may require two class periods to complete; these will be announced in advance.
- b. **Quizzes:** Quizzes may or may not be announced. Pop quizzes may be given on Mondays. Quizzes will usually cover 2 or 3 sections in a chapter. I will not review for quizzes; completing and understanding the assigned homework should be sufficient preparation for a quiz.
- a. **Homework:** Homework will be assigned everyday with the exception of Fridays. It is the students' responsibility to complete all assigned tasks. I may review some, but not all homework problems. If there is not enough time for review and a student still has questions, the student must see the teacher at the end of class to schedule additional help. **Excellence in physics cannot be achieved without a certain amount of practice. Homework is a necessary part of this practice. Homework to mathematics is like basketball practice to the big game. You cannot win unless you practice!**
- b. **Conduct:** Student conduct will be observed daily and will be counted as part of the final grade. See School Regulation for additional rules.
- c. **Projects (and Laboratories):** Projects will be assigned during the year. Projects are expected to be turned in on time. Past due projects will be penalized by deducting up to 10 percent of total grade per day of tardiness.

Course Content:

**Chapter 1: Science of Physics**

1.1 What is Physics?

1.2 Measurements in Experiments

1.3 The Language of Physics

**Chapter 2: Motion in One Dimension**

2.1 Displacement and Velocity

2.2 Acceleration

2.3 Falling Objects

**Chapter 3: Two Dimensional Motion and Vectors**

3.1 Introduction to Vectors

3.2 Vector Operations

3.3 Projectile Motion

3.4 Relative Motion

**Chapter 4: Forces and the Laws of Motion**

4.1 Changes in Motion

4.2 Newton's First Law

4.3 Newton's Second and Third Laws

4.4 Everyday Forces

**Chapter 5: Work and Energy**

5.1 Work

5.2 Energy

5.3 Conservation of Energy

5.4 Power

**Chapter 11: Vibrations and Waves**

11.1 Simple Harmonic Motion

11.2 Measuring Simple Harmonic Motion

11.3 Properties of Waves

11.4 Properties of Waves

**Chapter 13: Light and Reflections**

13.1 Characteristics of Light

13.2 Flat Mirrors

13.3 Curved Mirrors

13.4 Color and Polarization

**Chapter 14: Refraction**

14.1 Refraction

14.2 Thin Lenses

14.3 Optical Phenomena

**Chapter 16: Electric Forces and Fields**

16.1 Electric Charge

16.2 Electric Force

16.3 The Electric Field

**Chapter 17: Electric Energy and Current**

17.1 Electric Potential

17.2 Capacitance

17.3 Current and Resistance

**Absence during examinations:** When a student misses a test or quiz because of sickness, a retake will be given within 5 school days only if the student provides a valid medical excuse upon his/her return. When a student misses a test or quiz without a valid excuse, he/she will be required to take it upon his/her return to school. Retakes may be given on Mondays. I will **not** provide a review for a retake; it is the student's responsibility to obtain the material and to prepare for the retake. Any other arrangements will be at the teacher's discretion.

**Absence from class:** In the event a student is absent from class, he/she is responsible for obtaining all material taught, including assignments. I will not re-teach any material that a student misses due to absence during class hours; again, it is the students' responsibility to find out what he/she missed and to obtain help. Being absent on the day of a test review will not exempt a student from taking the test on the assigned test day. All additional rules applicable to student absences are as per School Regulation.

**Parent/Teacher Appointments:** As per School Regulation. I will work with every parent as much as possible to accommodate meetings after regular school hours. Please understand that under no circumstances should a parent interrupt a class to speak to either myself or his/her child. If a parent must see his/her child, the parent has to go by the front office first.

**References:** Here is a list of sites you can use to reinforce topics discussed in class.

<https://www.khanacademy.org/science/physics>

<http://physics-help.info/>

<http://www.physicsclassroom.com/class>

<http://www.solvephysics.com/>

Videos from <https://www.youtube.com/>

**Dear Parents:** It is my expectation that by the end of the school year, my students will have gained a wealth of knowledge that will better prepare them for the next grade, for college, and for life in general. We want to have fun while we learn, but I also strongly value the qualities of honor and respect. We will practice these and other values throughout the year.

Communication is essential! I will make every effort to meet with you when needed to help your child succeed in my class. But we have to work together. Please, take the time to review your child's notebook often and ask him/her how their day went at school. Get more involved with your child's education because he/she cannot do it alone. It is normal for some students to struggle with the math involved in physics, but any problem can be resolved if we address the obstacles early on – don't wait until the report card is completed before you ask for help. I believe in your child's ability to succeed. Let's have a great year!

\*This Syllabus is Subject to Change without Notice