

# Physics 12 Course Outline

This course is a continuation of the concepts learned in Physics 11, with vectors and 2-D applications adding an extra challenge. Students will also learn about orbital motion, momentum and electromagnetism.

## **Requirements:**

- A scientific calculator. Students may also choose to purchase a graphing calculator if they are planning to take Pre-Calculus 12.
- Work Ethic: Students will be expected to complete a large volume of work. This includes a serious amount of homework and well-constructed formal lab write-ups. Lab write-ups are due within two periods. Homework for the unit should be complete by the day of the Unit Test.
- Initiative and responsibility: Students are expected to make up any missed material or tests on their own time, which means seeing me for help or making up tests during lunch or Wise Block. Students are expected to be productive at all times in the class. If they finish the day's assignment in class, they should continue on to the next section.

## **Materials:**

Gore Physics 2.

**Effort Mark:** will be evaluated according to the NorKam CARES effort matrix which is posted in the classroom.

**Core Competencies:** will be evaluated using self-assessment. Students will consider their own development in the areas of:

- Communication
- Critical Thinking
- Creative Thinking
- Social Responsibility
- Personal Identity
- Personal Awareness



## Assessment

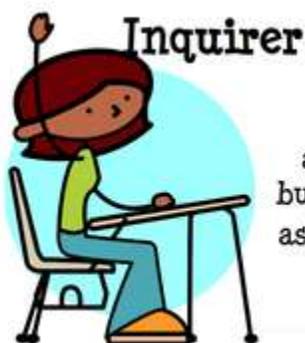
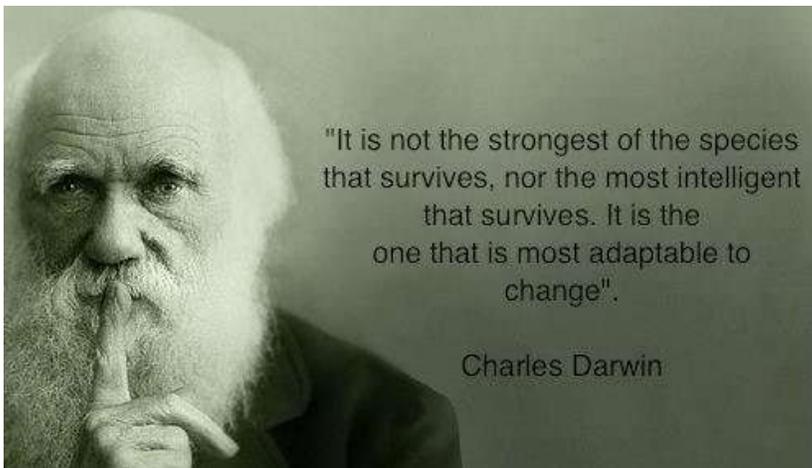
**Formative assessment:** will consist of assigned questions and quizzes. Formative assessment does not count towards the final mark

**Summative assessment:** will consist of unit tests, laboratory reports, and projects. There will be rewrite opportunities for unit tests. However, corrections on formative and summative work are expected in order to qualify for a retest.

**Curricular Competencies:** skills that all students are expected to develop in this course. They will be assessed during experiments and projects in each unit and consist of:

- Questioning and predicting
- Planning and conducting an experiment
- Processing and analyzing data
- Evaluating experimental results
- Applying and innovating
- Communicating

**NorKam attributes:** students are expected to demonstrate the attributes of Global Citizenship, adaptability, and inquiry. These attributes will be incorporated into the rubrics of student projects.



Millions saw the apple fall, but Newton asked why.  
-Bernard Baruch



**Course Content:**

Content is organized into the following units which will be equally weighted:

Unit	Big Ideas	Elaborations
Kinematics	Measurement of motion depends on our frame of reference.	2D Vectors and scalars, projectiles and relative velocity
		Relationships between variables
Dynamics	Forces can cause linear and circular motion.	Gravitational vs inertial mass, apparent weight
		Acceleration of a system of objects
		First peoples principles of learning
Momentum	Momentum is conserved within a closed and isolated system.	Law of conservation of momentum
		Law of conservation of energy
		First peoples principles of learning
Fields	Forces and energy interactions occur within fields.	Circular motion as a result of a center seeking force
		Gravitational forces and fields interacting with mass and energy
		Electromagnetic force producing electricity and magnetism
		Applications of electromagnetic induction
		Electric fields and forces and Coulomb's law
Final Exam	Cumulative Assessment of the course	Final exam consists of multiple choice and written response sections, including a practical component