

**Hostos Community College  
Natural Sciences Department  
Physical Sciences Unit**

**PHY 210 SEC**

**General Physics I**

**Total Credit: 4.0**

**Professor:**

**Class Schedule:**

	<b>Day</b>	<b>Time</b>	<b>Classroom</b>
<b>Lecture</b>			
<b>Laboratory</b>			
<b>Recitation</b>			

**Contact Information:**

E-Mail:

Office:

Phone:

Office Hours:

**Required Textbooks:**

Sears and Zemansky's University Physics: with Modern Physics. Young and Freedman. 12th ed. Vol. 1. *ISBN-13: 978-0-321-50056-4, ISBN-10: 0-321-50056-3*. This textbook comes with a student access kit for MasteringPhysics, our online homework system.

Suggested Study Aid: Study Guide for Sears and Zemansky's University Physics: with Modern Physics. Young and Freedman. Laird Kramer. 12th ed. Vol. 1. *ISBN-13: 978-0-321-50033-5, ISBN-10: 0-321-50033-4*

A Laboratory Manual is also required. (To be distributed in class)

**Pre-Requisite and Co-requisite:** Pre-Requisite: MAT 210

Co-Requisite: MAT 220

**Course Description:**

Various laws and concepts of physics including vectors, Newton's laws and their application to one and two-dimensional motion, work and energy, momentum, collisions, torque, angular momentum, periodic motion, fluids, heat and thermodynamic process will be studied. Offered for transfer physical sciences and engineering students to senior colleges.

**Student Learning Outcomes:**

After the successful completion of the course, student should be able to:

- Acquaint the basic principles and general laws of physics.
- Understand and apply the relationship among the topics that were taught.
- Develop problem solving, analytical, and communication skills that will provide the foundation for lifelong learning and career development.
- Interpret scientific observation, apply scientific principles to analyze and solve real life problems.
- Understand and use the basic units of mass, length and time and perform their conversion from one system to another.
- Demonstrate the ability to derive basic kinematics equations, graphical and analytical interpretations of vector components, projectile motions other fundamental topics using calculus.
- Accurately manipulate, extract and interpret laboratory data.
- Obtain essential skills necessary for success in graduate and professional schools, and for careers in industry and teaching.
- Develop an appreciation for and an understanding of the significance of physical phenomena in our daily lives.

**Key Concepts:**

Measurements, vectors, velocity, acceleration, Newton's laws, inertia, force, friction, work, energy, momentum, conservation of momentum, gravitational interactions, laws of thermodynamics, fluid mechanics, heat, temperature.

**Attendance Policy:**

Students are expected to attend all class meeting (both lecture and lab) on time. Your participation in class is an important part of the final grade. This grade is based primarily on your participation in class discussions, in team projects and your attendance. For each class you miss, you will lose participation points. If you miss 25% or more of the term, you will be failed. **Make up exams are given only under extreme circumstances.**

**YOU MUST COMPLETE ALL THE LABS. There will be no make ups for any labs.**

**Graded assignments:**

The Final Grade will be determined by the grades on lecture and lab combined as follows:

<b>Lecture</b>	<b>75%</b>	A	93-100
3 Partial Exams	45%	A <sup>-</sup>	90-92
Final Exam	25%	B <sup>+</sup>	87-89
(5 / 6) Quizzes	5%	B	83-86
<b>Laboratory</b>	<b>25%*</b>	B <sup>-</sup>	80-82
		C <sup>+</sup>	77-79
		C	70-76
<b>Total Grade Course</b>	<b>100%</b>	D	60-69
		F	Failure

*No student under any circumstances will be given a passing grade in this Physics course without passing the laboratory component. Three (3) unexcused absences in lab are equivalent to an F.*

**Laboratory:**

**\*The laboratory grade will be based on the student's attendance, the average of the Flow Chart (Experimental-Related Problem), Lab Report and the Project grades. The lab grade will contribute 25% towards the final course grade (15% Lab Work and 10% Project)**

**Flow Chart:** Students must read the assigned experiments beforehand and submit a written summary (Experimental Procedure/Flow Chart/Experimental-Related Problem) in the lab. This is part of the lab. 10 points will be subtracted for that particular lab grade if not handed. NO EXCEPTIONS! They will be due at the beginning of the laboratory. It must contain the goal and the main procedure of the lab you are supposed to perform.

**Lab Report:** Each student will submit a report about the lab activities. All reports must include an *Introduction, Objective, Apparatus, Experimental Procedure, Results (calculations, Data/Tables), Discussion, Conclusions, and References (if needed)* (We will discuss the details in the class). They will be due at the beginning of the following laboratory period. No more than two weeks delay will be allowed. For every week the report is late ten points will be deducted. If you fail presenting the report, the maximum possible grade for that lab will be 50 points out of 100. The report grade will include the student's performance of the experiment in the laboratory, timeliness, and compliance with the safety rules. For each laboratory session the student is absent, s(he) will receive a GRADE OF ZERO and no report will be accepted for the experiment corresponding to the laboratory session that the student was absent from.

**Workshop:**

There will be a 110-minute workshop every week (registered as recitation section) where we will be solving problems in small groups with the help of workshop leaders. Exercises will be presented to the class by the teams. Through this workshop, student will be able to develop critical thinking skills. Student will be solving problems applying the concepts they have mastered in the classroom. Attendance is mandatory.

**Recommendation:**

I would like to recommend that you form a study group from the very beginning of the semester. It is important to read the sections prior to each class. After reading the sections, work on the examples followed by the assigned problems and homework. Work in a team and try to contribute and participate in the group discussions.

**Approximate Course Outline\***

<b>WEEK</b>	<b>Week of</b>	<b>LECTURE</b>	<b>LAB</b>
1		Chapter 1: Units, physical quantities, and vectors	Lecture: Chapter 1
2		Chapter 2: One dimensional motion: Motion along a straight line	Labor Day: No Class
3		Chapter 2: One dimensional motion: Motion along a straight line	Measurements. Vernier Caliper; Micrometer. Density of unknown objects
4		Chapter 3: Motion in two and three dimensions. Projectile motion. Relative velocity <b><u>Exam 1</u></b>	Vectors. Equilibrium of a particle. The force table Workshop
5		Chapter 4: Newton's laws of Motion	Atwood's machine
6		Chapter 5: Applying Newton's Laws. Particles in equilibrium, Dynamics of particles, Frictional forces. Circular motion	Air track experiment
7		Chapter 6: Work and kinetic energy	Columbus Day: No Class
8		Chapter 7: Potential energy and energy conversion <b><u>Exam 2</u></b>	Workshop – Student Project
9		Chapter 8: Momentum, impulse and collisions	Frictional Forces. Inclined Plane
10		Chapter 9: Rotation of rigid bodies	Workshop
11		Chapter 10: Dynamics of rotational motion <b><u>Exam 3</u></b>	Linear momentum Workshop
12		Chapter 11: Equilibrium and elasticity	Equilibrium of a rigid body – Workshop
13		Chapter 12: Gravitation	Workshop
14		Chapter 13: Simple harmonic motion	Workshop
15		Chapter 14: Fluid mechanics / Course Review Course Review	Project Presentation

**DATE OF FINAL EXAM:**

\*We reserve the right to modify the schedule to better achieve the learning goals for the course.

**Academic policies:**

Hostos Community College has an evaluation system based on the honesty and integrity of the academic work of an identified student or students. Faculty, students and staff have the responsibility to uphold the standards of the community and to take action when others violate them. Faculty members have an obligation to educate students to the standards of academic integrity, and to report violations of these standards to the appropriate authorities of the college. If a community member is proved with academic dishonesty, the college will impose sanctions. The three most common forms of academic dishonesty are cheating, plagiarism, and bribery. It must be understood that any student who knowingly aids in plagiarism or other cheating, e.g., allowing another student to copy a paper or examination question, is as guilty as the cheating student.

**Cheating:**

In the collegiate setting, cheating is defined as the purposeful misrepresentation of another's work as one's own. Faculty and students alike are responsible for upholding the integrity of this institution by not participating either directly or indirectly in an act of cheating and by discouraging others from doing so.

**Plagiarism:**

Plagiarism is a form of cheating which occurs when persons, even if unintentionally, fail to acknowledge appropriately the sources for the ideas, language, concepts, inventions, etc. referred to in their own work. Thus, any attempt to claim another's intellectual or artistic work as one's own constitutes an act of plagiarism.

**Bribery:**

In the collegiate setting, bribery involves the offering, promising, or giving of items of value, such as money or gifts, to a person in a position of authority, such as a teacher, administrator, or staff member, so as to influence his/her judgment or conduct in favor of the student. The offering of sexual favors in exchange for a grade, test score, or other academic favor, shall be considered attempted bribery. The matter of sexual favors, either requested or offered, in exchange for a grade, test score or other academic favor shall also be handled as per the Sexual Harassment procedures of the College.

**HAVE FUN AND ENJOY LEARNING!**