

JAMESTOWN COMMUNITY COLLEGE
State University of New York

INSTITUTIONAL COURSE SYLLABUS

Course Title: General Physics I

Course Abbreviation and Number: PHY 1610

Credit Hours: 4

Course Type: Lecture/Lab

Course Description: Students will use computer-based sensors and probes to learn the fundamental phenomena, principles, and laws of physics. They will investigate Newtonian mechanics, rotational motion, simple harmonic oscillators and wave motion. Students will become aware of physics in everything they do and see.

Prerequisite: ENG 1510; **Eligibility:** MAT 1600; high school physics or PHY 1500.

General Education Requirements Met

SUNY

Natural Sciences

JCC

Scientific Reasoning

Student Learning Outcomes:

Students who demonstrate understanding can:

1. Write laboratory reports using proper grammar in which they:
 - a. Describe a purpose
 - b. Propose a hypothesis
 - c. Summarize and analyze observations
 - d. Draw a conclusion
 2. Design and interpret graphs or tables of data.
 3. Explain, give examples of, and illustrate applications of the concepts of physics in the following areas:
 - a. Force and motion (Newton's 3 Laws)
 - b. Graphic kinematics
 - c. Work and energy
 - d. Energy conservation
 - e. Forces (gravity & Friction) & Superposition of forces
 - f. Impulse-momentum
 - g. Momentum-conservation
 - h. Rotary motion
 4. Choose effective problem solving techniques in the area of:
 - a. Metric conversion
 - b. Kinematics
 - c. Force and motion (linear and projectile)
 - d. Force and motion (rotary)
 - e. Force and motion (projectile)
 - f. Work and energy
 - g. Equilibrium (translational & rotational)
 - h. Conservation of energy and momentum
 5. Use a computer as associated probes and sensors and software to collect and analyze data.
 6. Collaborate in the laboratory and/or classroom.
 7. Demonstrate competency with standard physics equipment, such as computer interfaced probes, triple beam balances, vernier calipers and micrometers, and optical balances.
 8. Demonstrate an understanding of the methods scientists use to explore natural phenomena, including observation, hypotheses development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling. [SUNY Gen Ed – Natural Sciences]
 9. Application of scientific data, concepts, and models in one of the natural sciences. [SUNY Gen Ed – Natural Sciences]
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Topics Covered:

- Metric System, dimensional analysis, significant figures, problem solving
- One-dimensional kinematics
- Vectors and relative motion
- Two-dimensional kinematics
- Newton's laws of motion
- Applications of Newton's laws
- Work and kinetic energy
- Potential energy and conservative forces
- Linear momentum and collisions
- Rotational kinematics and energy
- Rotational dynamics and static equilibrium

- Gravity
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Information for Students

- Expectations of Students
 - [Civility Statement](#)
 - [Student Responsibility Statement](#)
 - [Academic Integrity Statement](#)
 - [Accessibility Services](#)

Students who require accommodations to complete the requirements and expectations of this course because of a disability must make their accommodation requests to the Accessibility Services Coordinator.
 - [Get Help: JCC & Community Resources](#)
 - [Emergency Closing Procedures](#)
 - Course grade is determined by the instructor based on a combination of factors, including but not limited to, homework, quizzes, exams, projects, and participation. Final course grade can be translated into a grade point value according to the following:

A=4.0	B+=3.5	B=3	C+=2.5	C=2	D+=1.5	D=1	F=0
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 - Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, VA appointments) are welcome and encouraged to communicate these to the instructor.
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Effective Date: Fall2026