



蘇州大學
Soochow University

PHY 103 College Physics I

Fall 2023

Course Credits: 4

Contact Hours: 55 hours

Instructor: TBA

Email:TBA

COURSE OBJECTIVES

This course provides a comprehensive introduction to the principles of algebra-based physics, with a specific emphasis on mechanics and waves. Students will delve into various essential topics, including kinematics, planar motion, Newton's laws, gravitation, rotational kinematics and dynamics, work and energy, momentum and impulse, conservation laws, simple harmonic motion, waves, as well as data presentation, analysis, and error propagation. Throughout the course, students will gain a solid understanding of these foundational concepts and their practical applications in the field of physics.

Upon Completion of this Course, students will be able to:

1. Develop a solid understanding of the basic principles and laws of classical mechanics and apply these principles to analyze and solve problems related to the motion of objects, forces acting upon them, and the resulting dynamics
2. Enhance their mathematical proficiency and apply mathematical techniques to solve physics problems and use algebra, trigonometry, and calculus to model and analyze physical phenomena
3. Gain hands-on experience in conducting laboratory experiments related to classical mechanics and develop skills in accurately recording and analyzing experimental data, identifying sources of error, and drawing conclusions from experimental results
4. Apply the principles of physics to real-world situations and practical applications and explore how physics concepts relate to various fields, including engineering, medicine, environmental science, and technology.



PREREQUISITES

N/A

GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
Quizzes	10 Points
Midterm 1	20 Points
Midterm 2	20 Points
Lab Reports	20 Points
Final Exam	30 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

Fundamentals of Physics Extended, 9th edition, Halliday, Resnick, and Walker.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
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Module 1	<p>Topics: Topic 1: Vectors Topic 2: Motion Along a Straight Line Lab: Motion Topic 3: Motion in Two or Three Dimensions Topic 4: Motion in Two or Three Dimensions(Cont.)</p> <p>Assessments: Quiz#1; Lab Report 1</p>
Module 2	<p>Topics: Topic 5: Newton's Laws of Motion Topic 6: Newton's Laws of Motion(Cont.) Lab: Equilibrium of a Particle Topic 7: Applying Newton's Laws Topic 8: Newton's Laws and Uniform Circular Motion Lab: Forces and Newton's Laws</p> <p>Assessments: Quiz#2; Lab Report 2</p>
Module 3	<p>Topics: Topic 9: Work and Kinetic Energy Topic 10: Potential Energy and Energy Conservation Topic 11: Momentum, Impulse and Collisions Lab: Conservation of Energy Topic 12: Dynamics of Rotational Motion Lab: Ballistic Pendulum</p> <p>Assessments: Midterm#1; Lab Report 3</p>
Module 4	<p>Topics: Topic 13: Periodic Motion Lab: Work-Energy Topic 14: Mechanical Waves Topic 15: Static Equilibrium Topic 16: Sound and Hearing</p> <p>Assessments: Midterm#2; Lab Report 4</p>
Module 5	<p>Topics: Topic 17: Fluid Mechanics Topic 18: Doppler Effect Topic 19: First Law of Thermodynamics Topic 20: Second Law of Thermodynamics</p> <p>Assessments: Final Exam</p>



ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).



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ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.