Honors Physics I

Last Updated: Mon, 01/12/2026

Course prefix: PHYS

Course number: 2231

Section: A

CRN (you may add up to five):
28864 28865

Instructor First Name: Sven

Instructor Last Name: Behrens

Semester: Spring

Academic year: 2026

Course description:

This 5 credit hour course covers fundamental topics in Classical Mechanics. It is the Honors version of PHYS 2211, intended for students who want a more rigorous treatment of the subject matter. The course is designed for physics majors and very curious engineering/science students. Topics include Vectors and Kinematics, Newton's Laws, Particle Dynamics, Conservation Laws, Rotational Dynamics, Gravitation and Orbital Motion, and Oscillations. In addition to the lectures, the course includes a laboratory component. Two-thirds of the scheduled weekly Lab contact hours are devoted to conventional laboratory experiments, whereas one third of the contact hours are used for Problem Solving Studio sessions, in which students work collaboratively to identify essential physics concepts in a variety of contextual situations, and to formulate a systematic, organized solution to the problem identified.

Course learning outcomes:

Students who successfully complete this course will know how to quantitatively describe and analyze the motion of point objects and extended bodies, and how to apply Newton's Laws of Motion and fundamental conservation laws to problems of classical mechanics.

Required course materials:

Physics, Volume 1 (Fifth Edition), by Halliday, Resnick and Krane.

Chapters 1—14 and 17 will be covered in the course.

Grading policy:

The total course score will be calculated from scores on individual course deliverables using the following weights:

Final Exam - 25 %

Weighted average of 3 tests - 45 % (strongest individual test score: 20%, second strongest: 15%, weakest: 10%)

Labs:

- Laboratory attendance and lab reports - 10%
- Problem Solving Studio - 5%

Homework + Participation - 15%

- Homework assignments - up to 12 points (with homework + participation capped at 15 points)
- Class participation - up to 6 points (with homework + participation capped at 15 points)

(Sum: total weight of 100%)

The achieved percentage score will translate to the following letter grades

Letter grade: Percent

A: 90 or more

B: 80-89

C: 70-79

D: 60-69

F: 59 or less

Attendance policy:

Lab: Attendance in the lab is a course requirement. To pass this course, students must pass the laboratory portion with an average of 60% or more. Two unexcused absences from lab will result in an automatic deduction of 20% from your final lab average. Three unexcused absences from lab will result in automatic failure of the lab, and therefore, of the course.

Lectures: Irregular attendance of the lectures will lead to a poor participation grade.

Tests: An unexcused absence during a test will result in a test score of 0. If a student misses a test, and the absence is **excused** (by the Student Academic and Financial Affairs

Committee of the Academic Senate or by Dr. Behrens on the recommendation of the Dean of Students), the missing grade will be marked as "excused" and replaced by the final exam grade at the end of the semester.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.

Core IMPACTS statement(s) (if applicable):

This is a Core IMPACTS course that is part of the Technology, Mathematics & Sciences area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad **Orienting Question**:

- How do I ask scientific questions or use data, mathematics or technology to understand the universe?

Completion of this course should enable students to meet the following **Learning Outcome**:

- Students will use the scientific method and laboratory procedures or mathematical and computational methods to analyze data, solve problems and explain natural phenomena.

Course content, activities and exercises in this course should help students develop the following **Career-Ready Competencies**:

- Inquiry and Analysis
- Problem-Solving
- Teamwork