

# COURSE SYLLABUS

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**YEAR COURSE OFFERED:**

**SEMESTER COURSE OFFERED:**

**DEPARTMENT:** Physics

**COURSE NUMBER:** PHYS 2325/2125

**NAME OF COURSE:** University Physics I

**NAME OF INSTRUCTOR:**

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**The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.**

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## **Learning Objectives**

### University Physics I (PHYS 2325)

Upon completion of this course, students will be able to:

- (CT, EQ) Perform mathematical calculations involving vector and scalar quantities using calculus
- (CT, EQ) Use calculus to derive the equations of kinematics
- (CT, EQ) Solve static and dynamic mechanics problems using vector diagrams, Newton's laws of motion, Newton's law of gravity, and calculus for two-dimensional systems (e.g. projectile motion, collisions, rotational dynamics, orbital motion)
- (CT, EQ) Apply conservation laws of energy, momentum, and angular momentum to solve mechanical problems
- (C, EQ) Scientifically define basic physics terminology (such as "Velocity", "Acceleration", "Mass", "Force", "Work", "Energy", "Power", "Torque", "Momentum", "Angular Momentum") and mathematically describe the major relationships between these and other physical quantities
- (CT, C, EQ) Describe the behavior of mechanical oscillations and waves, and apply physics principles to solve oscillation and wave problems (e.g. simple harmonic motion – mass on a spring or simple pendulum, driven oscillations, resonance, damped oscillations, wave on a string, phase, sound)

### Laboratory for University Physics I (PHYS 2125)

Upon completion of this course, students will be able to:

- (CT) Develop a hypothesis about a physics phenomenon related to mechanics and perform an experiment to test it

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- (C) Write laboratory reports to effectively communicate results of experiments performed, including experimental design, reporting data and calculations in tabular or graphical form, performing error analysis, and discussion of results
- (EQ) Collect experimental data and perform calculations to determine other physical quantities and interpret results
- (T) Work effectively with one or more students, considering different points of view, to achieve experimental results

## Major Assignments/Exams

(Please remove blue text and insert all major course assignments and their weight in the final class grade for any assignments worth 10% or more)

## Required Reading

(Please remove blue text and list the Title, Author, and Year of all required readings for the course)

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(Please remove blue text and list the Title, Author, and Year of all recommended readings for the course)

## List of discussion/lecture topics

(Please remove blue text and include here all main lecture topics for the semester - dates optional)