

# PHYSICS 151 – COLLEGE PHYSICS I COURSE SYLLABUS

## University of Hawaii at Manoa

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Office: WAT 402  
Office Hour: 10:30 – 11:30am

**Course Title:** College Physics I

### Required Materials

*Textbook:* OpenStax, College Physics

*Webassign:* Online homework system

*Calculator:* A scientific calculator with scientific notation, trig functions, exponents and logarithms – bring to exams and lectures. Graphing or programmable calculators are allowed, but are not necessary.

### Reference book

College Physics, 10<sup>th</sup> edition by Young

### Course Description

PHYSICS 151 is the first course in a non-calculus based sequence of introductory physics. The topics covered include mechanics, wave motion and heat. The course requires mathematical tools of algebra, geometry, trigonometry and vectors.

### Prerequisites

Math 140 ["C" or better] or higher; or a passing score on the Math Assessment Exam.

All students wishing to enroll in PHYS 151, who have not earned a grade of "C" or better in MATH 140 (pre-calculus with trigonometry), or Math 215 or higher, may instead use a qualifying score on the Mathematics Department Assessment Exam. Please see <http://math.hawaii.edu/placement/> for more information, or contact the Physics and Astronomy Department (Watanabe Hall 416; 956-7087; physics@hawaii.edu).

### Learning Objectives

Upon successfully completion of this course the student shall demonstrate mastery of and competence in the following areas through assignments, classroom discussions, and formal evaluation:

- Measurement, Modeling and Unit Conversion.
- 1D and 2D Kinematics.
- Newton's Laws.
- Circular Motion and Gravitation.
- Energy and Work.
- Linear Momentum.
- Rotational Momentum.
- Equilibrium and Center of Mass.
- Simple Harmonic Motion.
- Thermodynamics.

### Grading

The boundaries separating letter grades in the final distribution are chosen based on the standards I have established for the course and are not predetermined numerical values. The work submitted for evaluation will count towards the final grade based the following:

Homework	20% (15% online; 5% paper)
Exam I	20%
Exam II	20%
Exam III	20%
Exam IV	20%

### *Exams*

All four exams are exclusively problem solving, and are closed book/notes. You are allowed to bring one 8.5" X 11" sheet of handwritten notes (no printouts or photocopies) to the exams (Graduate school exams, such as MCAT or GRE, *do not* allow open notes – you must memorize the formulas). You must take all exams to avoid a failing grade in the course. Due to time constraints, there will be no cumulative final exam.

### *Homework*

Each chapter will have both online and paper homework. The paper homework will be due on **the following lecture day before the lecture starts**. The online homework will usually be due on the following lecture day and will be graded automatically in webassign website. Your scores will be reported to me automatically. Late homework will not be allowed without a legitimate, verifiable excuse. There will be homework for each chapter, so don't pile them up.

### **Solving Physics Problems**

- Pay attention to significant figures and units – all final numerical results must accompany proper units.
- Always check dimensions.
- Solve problem **symbolically**. If you “plug in” numbers at the beginning, the dimensional analysis will become impossible along the line.
- You will need a scientific calculator for homework and exams.
- On free-response problems, you must show your work. A correct final answer without steps is not acceptable and will result in no credit.
- Please do NOT use *red ink* on any homework or exams. It is reserved for grading.

### **Exam and Homework Policy**

- You must work on exams *entirely on your own*. No collaboration of any kind is allowed. Copying from the other students, even partially, will be given a score of **zero**. Cheating or plagiarism may be forwarded to the Office of Judicial Affairs for further disciplinary review.
- During exams, NO electric device (phone, tablet, laptop etc.) is allowed expect a calculator. A smartphone calculator is not allowed in exams.
- We encourage students to first attempt homework problems individually. You are allowed to study together, but it is unwise to let someone simply show you the solution.
- Ultimately all assignments must be completed by the final day of the semester to receive any credit at all. No assignments/exams will be accepted after the final day.

### **Laulima**

All students enrolled in this course will have access to the additional information posted on the Laulima site for this course. You can access Laulima at <http://myuh.hawaii.edu>. You will need your UH username and password to log in. Please use “Messages” tool in Laulima for course communication (**not Email**).