



SYLLABUS

Physics 151 – College Physics I

SEMESTER: Fall 2017 (August 21 – December 15, 2017)

COURSE TIME: MWF 9:30 – 10:20 am

CREDIT: 3 semester hours

SECTION/CRN: Section 001/CRN 71916

LOCATION: PSB 217

INSTRUCTOR: Dr. Mark H. Slovak

OFFICE: Watanabe 313

TELEPHONE: (808) 956-2959

UH e-mail: mslovak@hawaii.edu

OFFICE HOURS: MWF 8:00 – 9:00 am; TuTh 3:00 – 4:00 pm or by appointment.

TEXTBOOK(S): *College Physics*, Openstax. This is an open use FREE etext (PDF) which will be in a Physics 151 folder in Dropbox or you can download your own copy. **(Required)**.



SUPPLIES: Ownership of/access to a scientific graphing calculator, capable of scientific notation, logarithmic, exponential and trigonometric functions (including inverse functions). **(Required)**.



COURSE DESCRIPTION: Physics 151 is the first semester of a two-semester sequence in college level physics. It begins with a basic review of algebra/trigonometry essentials leading into vector algebra. One and two dimensional kinematics and dynamics are covered as well as Newton's laws of motion and theory of universal gravitation. General concepts of momentum, impulse, work and energy are developed and motivate an introduction to torque and rotational motion. Other topics include simple harmonic motion (SHM), fluids (static and dynamic), heat, thermodynamics, statistical physics, and basic wave theory with an emphasis on mechanical waves (sound).

PREREQUISITE: Math 140 (Trigonometry/Analytic Geometry) or Math 215 (Applied Calculus I) or higher. Basic knowledge of customary (English) units is expected and will be expanded with metric (*Systeme International d'unités* (SI) units).

LAB: Students may enroll in PHYS 151L (*College Physics Laboratory I*). It is highly recommended that students enroll in the lab concurrently with the lecture but it is not required to do so.

CLASS POLICIES: The University does not have a mandatory attendance policy nor will roll necessarily be taken each class period. Occasional unannounced in class assignments are given and serve both as proof of attendance as well as for a score. Each student is responsible for all materials presented, including lecture notes and in-class demonstrations. If a class is missed for a valid reason (family emergency, medical, university-related travel), it is the student's responsibility to contact the instructor (using UH Manoa e-mail mslovak@hawaii.edu) to obtain any assignments or additional information. A mailbox is located outside my office (Watanabe 313) and ALL items should be placed in it (do not slip papers under my door as they may be discarded by the janitorial service).

STUDENT CONDUCT: It is also the student's responsibility to be familiar with the University *Code of Conduct* outlining the University's policy regarding academic dishonesty and other prohibited behaviors. Important excerpts are listed below:

University of Hawaii: **Conduct – Rules and Regulations**

Engaging in any of these behaviors subjects a student to the disciplinary process and sanctions on each campus.

1. Acts of dishonesty, including but not limited to the following:
 - a. *Cheating, plagiarism, or other forms of academic dishonesty.*

The term "cheating" includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) the acquisition, without permission, of tests or other academic material belonging to a member of the UH faculty, staff or student (4) engaging in any behavior specifically prohibited by a faculty member in the course syllabus or class discussion.
2. Disruption or obstruction of teaching, research, administration, disciplinary proceedings, other UH activities. Creating noise or other disturbances on campus sufficient to disrupt the normal functioning of campus activities including classroom instruction.
3. Threatening or endangering the health or safety of any person including but not limited to, physical abuse, verbal abuse, threats, intimidation, harassment, coercion, or stalking.
4. Sexual advances, requests for sexual favors or other behavior of a sexual nature that is unwelcome and sufficiently severe or pervasive that it interferes with a person's academic or professional performance or creates an intimidating, hostile or offensive educational environment.

CIVILITY: Students are expected to be on-time for class, courteous about not talking, have silenced cell phones and not being disruptive near end of lecture. *Always* put your class (PHYS151) in the subject header of any email so I can readily identify which class you are in (as I teach two other physics classes as well).



HOMEWORK: In addition to weekly chapter reading assignments, **seven (7) homework assignments** in the *Expert TA* website will be assigned. Homework is to be completed by the due date listed with each assignment. **(10% of course grade).**

QUIZZES: Announced quizzes will usually be given during a Friday lecture for a total of **four (4) quizzes**. Occasional unannounced *in class assignments* will also be given to check *attendance* as well as for a score, counting as $\frac{1}{2}$ a quiz. Solutions to quizzes will be posted in Dropbox. See Class Schedule for more detail **(20% of course grade).**

EXAMS: Three (3) in class exams are scheduled during the semester. Each exam covers material since the previous exam and may include extra credit questions. Exams are normally scheduled during a Friday lecture, unless it is a holiday. Solutions to exams will be posted in Dropbox. See Class Schedule for more detail. **(54% of course grade).**

FINAL EXAM: A comprehensive 2 hour final exam is given on Friday, December 15, 2017 from 9:45 – 11:45 am in the regularly scheduled classroom (PSB 217). **(16% of course grade).**

STUDENT LEARNING OUTCOMES (SLOs): After successfully completing Physics 151, students should be able to:

- Demonstrate significant physics problems solving and calculator skills;
- Perform unit conversions, basic dimensional analysis and vector algebra;
- Define and explain the terminology of vectors, mechanics, accelerated vs. unaccelerated motion, work, energy, momentum, torque, rotational motion, thermodynamics, heat, and wave properties;
- Recognize the principles of physics that form the basis for various modern technologies and be able to solve the relevant algebraic equations that are derived from such principles;
- Show proficiency using a scientific graphing calculator to perform numerical operations to solve equations of algebraic physics, including trigonometric, exponential and logarithmic functions and their inverses;

PROVISIONAL GRADING: The preliminary grading scale used to assign the final grade is given below and is subject to minor revision (i.e. “curving”) at the discretion of the instructor based on class performance.

A: 90 - 100% B: 80 - 89% C: 70 - 79% D: 60 - 69% F: < 60%

MAKEUP: Students are strongly encouraged NOT to miss any quizzes or exams during the semester, unless a valid reason such as medical emergency arises or excused university travel. *All makeup quizzes or exams will be scheduled during the instructor's office hours or by appointment only and must be made up within one (1) week of quiz/exam date unless exceptional circumstances arise.*


SPECIAL SERVICES: Students with special needs and accommodations are requested to contact the UH Manoa KOKAU program for accommodation regarding extended time and assistance for quizzes and exams. Go to <http://www.hawaii.edu/kokua/> for more information.

ADDITIONAL RESOURCES: For additional help outside of office hours and forming student study groups, students may receive additional assistance at:

- The Physics Learning Center in Watanabe 421. Open whenever Watanabe Hall is open (not on weekends). Physics Lab TAs schedule two weekly office hours in this room for tutoring. Couches, chalkboards, and many reference texts are available. Check schedule posted in Watanabe 421
- The Natural Science Learning Emporium in Bilger Addition 209, open weekdays for all students taking lower division math and science classes. Schedule for tutors for physics is posted on BilA 209 and can be found at <http://www.hawaii.edu/natsci/physics.php>.
- The Learning Assistance Center in Sinclair Library offers free, one-on-one tutoring for PHYS 151, as well as for other math and science classes. Go to <http://manoa.hawaii.edu/undergrad/learning/tutoring> for more information.

There are many good and interesting physics websites available, with video lectures, demonstrations, explanations and simulations. Some are free to access and others require a fee. One free website that is recommended is *The Physics Classroom* at:

<http://www.physicsclassroom.com/>

 **NEW** LEARNING ASSISTANTS (LAs): We are fortunate to now have Learning Assistants (LAs) to assist with large undergraduate classes. LAs are experienced science/engineering UG students who have completed either the Physics 151-152 or Physics 170-272 sequence and are chosen for their excellent overall performance. They will help setup demonstrations, assist with quizzes and exams, give mini-lectures, tutor in Watanabe 421 and participate in evening review sessions. They will (often) attend lecture and will be introduced the first week of class.

HOMEWORK WEBSITE *Expert TA*: Students are required to enroll in the *Expert TA* website which is used for homework. Problems are assigned from chapters in the *College Physics* textbook and a student solution manual is posted in Dropbox. To enroll in *Expert TA* follow the instructions at the registration link below:

Expert TA Student Registration Fall 2017

Registration: PHYS 151 (Fall 2017) College Physics I w/ Dr. Slovak Cost: \$32.50.

Link: <https://www.theexpertta.com/registration>

Student Class Code: **USC13HI-104339-1JM**

Students *must* be registered in Physics 151 *before* they can enroll in *Expert TA*. All registered students need to enroll by *the end of the first week* of classes to access assigned homework in a timely manner (each assignment is due in two weeks).