

PHYS 151L COLLEGE PHYSICS LAB I

1 credit (63077)

Tuesday & Thursday 2:30 – 3:45 pm

INSTRUCTOR: Joseph Ciotti
OFFICE: 'Imiloa 134
OFFICE HOURS: posted on office door
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EFFECTIVE DATE: Fall 2016

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

Experiments in statics, mechanics, energy, waves, and friction

PREREQUISITES: Credit or concurrent registration in PHYS 151.

Activities Required at Scheduled Times Other Than Class Times: none

STUDENT LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to:

1. Apply the scientific method to physical science systems involving mechanics, energy, simple oscillatory systems, gas laws and fluid dynamics
2. Collect, report and analyze data obtained in a laboratory setting in a manner exhibiting organization, proper documentation and critical thinking.
3. Manipulate data and apply quantitative techniques, such as graphing and statistical analysis
4. Demonstrate a basic understanding of the standard instruments used in physics.
5. Identify environmental factors, which affect the outcome of an experiment or observation and apply basic error analyses techniques.

COURSE OVERVIEW

A. Goal of the Course

The primary goal of this basic physics laboratory course is to provide the student with an in-depth feeling for the scientific method through the use of physical investigations. Although many of the hypotheses which will be considered have previously been accepted as laws via numerous experimental approaches, the purpose here will be to carry out independent experiments whose results may possibly be used to evaluate and/or verify existing contemporary scientific facts, theories and/or laws.

B. Instructional Materials

Laboratory handouts for the various experiments will be distributed to the student for each scheduled experiment.

The use of a scientific calculator is strongly recommended.

C. Mode of Instruction

The instructor will give a preliminary discussion of each experiment at the start of each lab period. This overview will usually include demonstrations and explanations pertaining to the use of the apparatus and the objective(s) of the experiment. This discussion is intended to supplement, rather than replace, the student's preparation prior to coming to class.

ASSESSMENT TASKS AND GRADING

Method of Evaluation

Evaluation of the successful completion of the objectives of this course will be determined by grades received on the following evaluative instruments:

- **Laboratory Reports:** Lab reports are completed according to the instructions given on the handouts distributed at each lab session. Ordinarily, the report consists of a completed data and analysis sheet provided in the handout plus any other appropriate sheet of observed data and graphical analysis. Graphical analysis can be computed using computer software.

Lab Reports are worth **20 points** each. **The lowest lab score will be dropped from the student's records.** All graded Lab Reports are to be turned in at the **beginning** of the next scheduled lab period. **Penalty for a late lab report will be two (2) points per school day the report is late.** Under special circumstances, this penalty may be waived at the discretion of the instructor.

Grading System

Each letter grade and its respective level of achievement is provided in the following table:

Letter Grade Definition

A	90% - 100% of cumulative points possible	(excellent achievement)
B	80% - 89% of cumulative points possible	(above average achievement)
C	70% - 79% of cumulative points possible	(average achievement)
D	60% - 69% of cumulative points possible	(minimal passing achievement)
F	below 60% of cumulative points possible	(less than minimal passing achievement)
I	Incomplete: This is a temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond the student's control. The student is expected to complete the course by the designated deadline in the succeeding semester. If this is not done, the "I" will revert to the contingency grade identified by the instructor.	

Credit/No Credit Option

Note: Refer to the current Schedule of Classes for CR/NC declaration deadlines. This grading option is not available in all courses and will not be offered to majors in required courses.

CR Achievement of objectives of course at the C level or higher. (course credit awarded)

NC Used to denote achievement of objectives of the course at less than C level under CR/NC option. (no course credits awarded)

N The "N" grade, which is issued at the instructor's option, indicates that the student has worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress. However, either the student has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level, or the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies, (no course credits awarded)

W Official withdrawal from the course course. See the Schedule of Classes for information regarding current semester deadlines. If a student officially withdraws within the erase period, the record of registration will not appear on the student's transcript. (no course credits awarded)

L Audited Course (no course credits awarded)

LEARNING RESOURCES

Textbook: All laboratory experiments will be described in handouts distributed throughout the course.

Required Materials:

- scientific calculator
- graph paper
- metric ruler
- notebook

Recommended Materials:

- thumb drive

Additional Information Instructor expectations

1. Make-up labs are normally not permitted.
2. The student is responsible for keeping abreast with any changes in syllabus, which are announced in class.
3. If you have a physical, sensory, health, cognitive or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor, Ann Lemke, to discuss reasonable accommodations that will help you succeed in this class. She can be reached by phone at 235-7448 or via email lemke@hawaii.edu, or you may stop by Hale 'Ākoakoa 213 for more information.
4. A student can determine his/her current grade at any time during the semester by dividing his/her cumulative score by the cumulative points possible and converting into a percentage and referring to the table of Letter Grades.
5. Any student wishing to be informed of his/her semester grade in advance of the official report of grades should email a request for the grades to the instructor immediately after the last day of instruction. The student may also provide the instructor a stamped, self-addressed postcard or envelope on the last day of instruction with an enclosed note requesting the grades.

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Week of TUESDAY/THURSDAY

AUG	23	Lab 0: Pre-Lab Significant Figures
	25	Lab 1: Measurements & Significant Figures
	30	Lab 2: Graphing Techniques & Software
SEP	1	
	6	Lab 3: Hooke's Law (Graphical Software)
	8	
	13	continuation of lecture Chp 3
	15	continuation of Quiz 1
OCT	20	Lab 4: Pendulum (Controlled Experimentation)
	22	
	27	Lab 5: Acceleration
	29	
	4	continuation of lecture Chp 4
NOV	6	continuation of Quiz 2
	11	Lab 6: Vector Analysis
	13	
	18	Review for Mid-Term Exam
	20	Mid-Term Exam (test continued from lecture)
DEC	25	Lab 7: Inertial Mass
	27	
	1	Lab 8: Coefficient of Friction
	3	
	8	General Elections (no class)
	13	continuation of Chp 6 & review for Quiz 3
	15	Lab 9: Conservation of Energy
17		
NOV	22	Lab 10: Energy Transfer
	24	Thanksgiving Day (no class)
	29	Lab 11: Inelastic Collisions
	1	
	6	continuation of Quiz 4 from Lecture
DEC	8	Review for Final Exam

FINAL EXAM: None