

PHYS 152L COLLEGE PHYSICS LAB II

1 credit

Tuesday & Thursday 2:30 – 3:45 pm

INSTRUCTOR: Joseph Ciotti
OFFICE: 'Imiloa 134
OFFICE HOURS: posted on office door
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EMAIL: ciotti@hawaii.edu
EFFECTIVE DATE: Spring 2014

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 heat, electricity, magnetism, optics and modern physics.

PREREQUISITES: Credit or concurrent registration in PHYS 152.

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 fields of thermodynamics, electricity, magnetism, waves, optics, and modern physics.
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 student is required to use a notebook for recording all information related to the laboratory 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.

- **Notebook:** The student is also expected to maintain an individual notebook detailing each experiment performed, including all data obtained and calculations made.

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.

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|-----------|---|--|
| 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

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 'Akoakoa 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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2:30 – 3:45 pm

TUESDAY/THURSDAY		
Jan	14/16	Lab 1: Density
	21/23	Lab 2: Thermal Linear Expansion
	28/30	Tu: problem solving; review for Quiz 1 Th: continuation of Quiz 1
Feb	4/6	Lab 3: Gas Laws
	11/13	Lab 4: Calorimetry
	18/20	Lab 5: Simple Harmonic Motion
	25/27	Tu: continuation of Quiz 2 Th: Lab 6: using a VOM meter
Mar	4/6	Lab 7: Electric Field Mapping
	11 13	Tu: Problem Solving; review for Mid-Term Th: MID-TERM EXAM for PHYS 152 lecture
	18/20	Lab 8: Ohm's Law
	25/27	Spring Recess
Apr	1/3	Lab 9: Circuit Analysis
	8/10	Lab 10: Magnets & Transformers
	15/17	Lab 11: Optics (Simple Lenses)
	22/24	Lab 12: Spectroscopy
Apr/ May	29/ 1	Lab 13: Reflectance spectroscopy
	6 8	Tu: Review for Final Exam Th: No Class (last day of instruction: May 1)

FINAL EXAM: None