



General Physics II Lab  
PHYS 2053  
Spring 2021  
January 11<sup>th</sup> – May 9<sup>th</sup>  
Wednesday  
(7:30am – 10:10am Sect. 1)  
(12:00pm – 2:40pm Sect. 2)  
LAB – AC 303

**NO FINAL – unless you want one...**

Welcome to PHYS 2053 – General Physics II Lab!

We will be using standard lab practices

- Experimental goals will be presented at the BEGINNING of each in-class laboratory assignment.
- You will be given the rest of the period to meet these goals and record your observation for all in-class laboratory assignments.
- The laboratory assignments/worksheets will be due on their assigned dates on the course's Blackboard site.

\*\*The lecture (PHYS 2052) is a separate course

#### INSTRUCTOR INFORMATION

**Instructor:** Nathan J. Dawson

**Email:** [ndawson@hpu.edu](mailto:ndawson@hpu.edu)

**Office:** AC 311A

**Office Phone:** 236-7909

**Office hours:** Tues 12:00pm – 1:00pm, Wednesday 3:00pm – 4:00pm (see course Blackboard announcement for link to the Blackboard Collaborate Ultra virtual classroom link)

#### COURSE INFORMATION AND REQUIREMENTS

**Course meeting times and location:** All classes will meet in **AC 303 (Hawaii Loa Campus)**

**Required Resources:** Sovereign, grid lined lab book can be purchased on or off campus.

#### COURSE DESCRIPTION

**Course Description:** This is the laboratory component of PHYS 2052. A physics lab is where the basic behavior of reality is studied by proscribing and conducting properly constructed experiments. Experiments in electromagnetism will be conducted and recorded in your experimental journal. The scientific method will be discussed in instructor and student discourse.

**Prerequisite:** Completion of or concurrent enrollment in PHYS 2052.

**Method of Instruction:** This is a hands-on laboratory course

#### Learning Outcomes:

By the end of the course, students should be able to:

- Follow experimental procedures laid out for them.
- Describe the physics of basic electromagnetic systems.
- Communicate scientific observations.
- Demonstrate competency with scientific set up and mathematical relationships.
- Learn to evaluate the quality of science being performed by a third party.

## ASSESSMENT, GRADING SCHEME, and COURSE SCHEDULE

There are 13 labs, all related to carrying out experiment concerning the lecture material. Your grade will be based on the cumulative score of all laboratory worksheets. The points assigned to each completed laboratory assignment/worksheet are provided in the schedule. There are a total of 200 points. Therefore every 1 point is equivalent to 0.5% of the final cumulative score.

### Grading scale:

<b>A</b>	92 – 100%
<b>A–</b>	90 – 91%
<b>B+</b>	87 – 89%
<b>B</b>	82 – 86%
<b>B–</b>	80 – 81%
<b>C+</b>	77 – 79%
<b>C</b>	72 – 76%
<b>C–</b>	70 – 71%
<b>D</b>	60 – 69%
<b>F</b>	0 – 59%

### Course Schedule: (Student learning objectives for each chapter are assessed on the respective labs)

<b>Date</b>	<b>Topic</b>	<b>Activities &amp; Assignments</b>
<b>01/13</b>	Overview of expectations; lab format; Online simulation lab	<b>[18 points]</b> Syllabus, safety agreements
<b>01/20</b>	Coulomb's law	<b>[14 points]</b> LAB 01 – Coulomb's law (online)
<b>01/27</b>	Equipotential and electric field lines	<b>[14 points]</b> LAB 02 – Equipotential and E-field mapping
<b>02/03</b>	Linear circuits of resistors	<b>[14 points]</b> LAB 03 – Kirchhoff's rules
<b>02/10</b>	Parallel plate capacitor	<b>[14 points]</b> LAB 04 – Capacitors (online)
<b>02/17</b>	Resistor and capacitor circuit	<b>[14 points]</b> LAB 05 – Resistor–capacitors circuits
<b>02/24</b>	Magnetic field lines	<b>[14 points]</b> LAB 06 – Mapping magnetic field lines
<b>03/03</b>	Doped semiconductors and diodes	<b>[14 points]</b> LAB 07 – Semiconductors (online)
<b>03/10</b>	Spring break	<b>No Lab</b>
<b>03/17</b>	Time changing magnetic flux	<b>[14 points]</b> LAB 08 – Lenz's law
<b>03/24</b>	Phasors and resonance of LRC circuits	<b>[14 points]</b> LAB 09 – LRC circuits
<b>03/31</b>	E/M waves from an antenna	<b>[14 points]</b> LAB 10 – Electromagnetic waves (online)
<b>04/07</b>	Ray optics	<b>[14 points]</b> LAB 11 – Imaging with lenses
<b>04/14</b>	Interference and diffraction	<b>[14 points]</b> LAB 12 – Single slit and double slit experiment
<b>04/21</b>	Spontaneous and stimulated emission	<b>[14 points]</b> LAB 13 – Lasers (online)
<b>04/28</b>	<b>Last day to turn in late work.</b>	(Wednesday before finals week)

## INSTRUCTOR POLICIES AND EXPECTATIONS

### Attendance and Participation:

- One must attend to do each lab.
- Each student will keep their own lab journal (or electronic journal) containing data taken from each experiment in either the format from the provided worksheets or another scientifically acceptable format.
- Participation will be assessed throughout the lab by interaction with the instructor. When asked: "What have you discovered?" or "What have you learned?" A response is required.

**Instructor availability:** I will be available in my office after each laboratory. If this is not an option, students are encouraged to visit any of the four office hours and send emails to me using [ndawson@hpu.edu](mailto:ndawson@hpu.edu). I will check email at least once per day and respond as necessary within 48 hours. If you do not receive a response in this time-frame, please assume that I did not receive the email and inquire again.

**Make-up Work:** All absences, periods of time when a student is unable to complete course work due to a reason such as illness, military duty, or family emergency, must be coordinated with the instructor. Students should make every effort to notify the instructor **PRIOR** to the absence. But if you can't (or don't), please notify the instructor as soon as possible after the absence. This record of absences will be important if an **incomplete** grade and course extension are necessary due to extended absences during the course. Contact me.

**Late Work:** Assigned work is due as noted on the schedule. Labs will be docked 1 point (out of 20 total points) for each day late.

**Withdrawal:** If you need to make any changes to your registration, including withdrawing from or adding courses, return to your HPU advisor for assistance.

For specific deadlines regarding dropping the course with a withdrawal "W" grade and with no GPA penalty, but possible loss of some or all of the tuition. Pay particular attention to the dates associated with withdrawing from the course. It could determine whether you get any tuition back in the event you need to drop the course.

**Incomplete:** Students who are unable to complete course requirements due to circumstances beyond their control (e.g. Military duty, illness, natural disaster ...) can make a written application to me with documentation for an incomplete "I" grade and complete the course requirements after the end of the course.

**Extra Credit:** **There is no extra credit in this course.**

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**Academic Honesty:** All Students are expected to adhere to the University's policies regarding academic honesty. The policy of Hawai'i Pacific University is clear regarding academic dishonesty. Any student, who cheats on an academic exercise, lends assistance to others, or who hands in, as a completed assignment, work that is not his or her own will be penalized. The ultimate penalty is suspension from the University. The term "academic exercise" includes all forms of work submitted for points, grades, or credit.

### Academic Honesty Policy:

[http://www.hpu.edu/CourseSchedules/docs/FinalExams/Spring\\_2013\\_INTEGRITY\\_POLICY.pdf](http://www.hpu.edu/CourseSchedules/docs/FinalExams/Spring_2013_INTEGRITY_POLICY.pdf)

## TECHNICAL SUPPORT AND TUTORING OPTIONS

### HPU's Online Help:

HPU Client Services at (808) 566-2411 or email: [helpdesk@hpu.edu](mailto:helpdesk@hpu.edu) for technical assistance.

**Campus Tutoring** ([tutoring@hpu.edu](mailto:tutoring@hpu.edu)):

**The Downtown CAS** is located at 1060 Bishop Street (LB building), Floor 6. Tutoring is available in writing, modern languages, and math, accounting, business, science (MABS).

- This location operates on a walk-in, first-come first-served basis.
- Appointments are *only* taken for HPU students that work full-time, are active-duty military, have ADA status, or who want to see a Writing Mentor.

**The Hawai'i Loa CAS** is located in the Academic Center, 3rd Floor, Educational Technology Center (ETC). Tutoring is offered in select subjects.

- Operates by **appointment only**. Students can make appointments up to two weeks in advance, **ONLY one (1) appointment per subject per day**. For more information and for further assistance, please contact the Tutoring Center (Downtown) at (808) 544-9334.
- NEW!! Book HLC appointments online at: <http://www.genbook.com/bookings/slot/reservation/30196648>

#### Contact Information

Email: [tutoring@hpu.edu](mailto:tutoring@hpu.edu)

Phone