



Department of Physics and Engineering, Point Loma Nazarene University

PHY 2044 University Physics I (3 Units, 3 contact hours)

PHY 2044L University Physics I Lab (1 Unit, 2 contact hours)

Instructor (Fall 2024): Michelle Chen

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Office: Rohr Science 264 **Office Phone:** 619-849-2960

Office Hours: MWR 12:00 – 1:00 pm, T 1:30 – 2:30 pm, or by appointment

Lecture: MWF 7:25 am – 8:20 am, Rohr Science 265

Final Exam: 7:30 am – 10:00 am, Wednesday December 18, 2024

Lab: Section 1: R 10:00 – 11:45 am, Rohr Science 295

Section 2: T 3:00 – 4:45 pm, Rohr Science 295

Textbooks or Other Required Materials: Physics for Scientists and Engineers, 4th Edition by Giancoli, Access to Expert TA, and a calculator

Catalog Description: An analytic, calculus-based study of classical physics appropriate for science and engineering majors. Includes mechanics, waves, and thermodynamics.

Role in Program: Required

Course Learning Objectives/Outcomes: For Foundational Exploration Mission, PLNU provides a foundational course of study in the liberal arts informed by the life, death, and resurrection of Jesus Christ. In keeping with the Wesleyan tradition, the curriculum equips students with a broad range of knowledge and skills within and across disciplines to enrich major study, lifelong learning, and vocational service as Christ-like participants in the world's diverse societies and cultures.

This course is one of the components of the General Education Program at Point Loma Nazarene University, in support of the general education learning outcome: Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature. The purpose of general education is to provide a common educational experience, to develop essential skills, and to provide a broad cultural background for personal and professional growth. Within these broader outcomes, in this course you will:

1. translate the description of physics problems into the mathematical equations required to solve them using relevant physical principles
2. calculate solutions to physics problems once appropriate equations or techniques are identified
3. predict reasonable answers in appropriate problems, and assess the reasonableness of

calculated answers

4. explain the physical meaning of the parameters in introductory physics equations
5. create and interpret graphical representations of physical quantities
6. gather and interpret data in a lab setting

Student Outcomes Addressed:

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. (LO1)

Topics:

1. Introduction, measurement and estimating
2. Kinematics in one, two or three dimensions, vectors
3. Using Newton's Laws of Motion
4. Work and energy, conservation of energy
5. Linear momentum, rotational motion, and angular momentum; general rotation
6. Static equilibrium
7. Fluids
8. Oscillations
9. Wave motion
10. Sound
11. Thermodynamics

ASSESSMENT AND GRADING

Graded Components

- **Pre-Class:** In preparation for each class meeting there is a reading assignment. To be ready for group work and higher-level learning, these reading assignments are very important to help you come prepared to class. To complete the reading assignment, you must answer a few questions and submit them electronically through Canvas by 11:59 pm the night before class. Late submissions will not be accepted. This electronic communication is so important because it is your voice in what material we emphasize during class meetings and provides me constant feedback of your understanding of the material. These submissions will be graded on the following scale: 2 = demonstrates reading, 1 = room for improvement, 0 = unsatisfactory. These points are accumulated and are worth 2% of the final grade. The lowest 4 scores will be dropped.
- **Homework:** Practicing working physics problems is critical to your success in the class. Almost each week there will be homework assignment posted on CANVAS and due through ExpertTA. You are strongly encouraged to discuss with your classmates, but to solve and submit your own work. Late homework receives a 20% reduction in possible value per day.

- **Lab:** Weekly lab meetings will provide you the opportunity for hands-on experience of topics from class meetings, improve lab technique, and data analysis. Labs will be performed in small groups, but each individual is responsible for submitting their own results. It is essential to not miss a lab, since it would be very tricky to make up a lab without labmates. You must pass the lab portion of the class to pass the class.
- **Examinations and Final Examination:** There will be three in-class exams during the semester and one comprehensive final exam. All exam dates are indicated in the course calendar in the syllabus. Exams will be closed book, but a sheet of formulas will be provided to you to use during your exam. Partial credit will be given for correct reasoning at any step of a problem, but only if it is communicated clearly enough for me to understand. For problems that call for solution or explanation, no credit will be given for an answer alone; the method or reasoning must also be shown. Exams are to be taken at the time indicated in the syllabus unless other arrangements are made in advance with the professor for some unavoidable circumstance, and otherwise cannot be made up. You must take ALL the exams in order to pass the class. **Final Examination Policy:** Successful completion of this class requires taking the final examination **on its scheduled day (Wednesday December 18th, 2024, 7:30 am – 10:00 am)**.

Grading Scale

- Your course grade will be based on the following:

• Component	• Weight
• Pre-Class	• 2%
• Homework	• 18%
• Lab	• 20%
• Tests (3)	• 40% (equally weighted)
• Final Exam	• 20%

- **Grading Scale:** The letter grade you will earn in this course is based on the following:

Standard Grade Scale Based on Percentages

A	B	C	D	F
A $S \geq 92$	B+ $90 > S \geq 88$	C+ $80 > S \geq 78$	D+ $70 > S \geq 68$	$S < 60$
A- $92 > S \geq 90$	B $88 > S \geq 82$	C $78 > S \geq 72$	D $68 > S \geq 62$	
	B- $82 > S \geq 80$	C- $72 > S \geq 70$	D- $62 > S \geq 60$	

FINAL EXAM

Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the [Class Schedules](#) site. If you find yourself scheduled for three (3) or more final examinations on the same day, you are authorized to contact each professor to arrange a different time for one of those exams. However, unless you have three (3) or more exams on the same day, no requests for alternative final examinations will be granted.

CREDIT HOUR

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 4 unit class delivered over 15 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework. For this course, students will spend an estimated 150 total hours meeting the course learning outcomes. The time estimations are provided in the Canvas modules.

PLNU MISSION

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

GENERAL EDUCATION MISSION

PLNU provides a foundational course of study in the liberal arts informed by the life, death, and resurrection of Jesus Christ. In keeping with the Wesleyan tradition, the curriculum equips students with a broad range of knowledge and skills within and across disciplines to enrich major study, lifelong learning, and vocational service as Christ-like participants in the world's diverse societies and culture.

DEPARTMENT MISSION

The Physics and Engineering Department at PLNU provides strong programs of study in the fields of Physics and Engineering. Our students are well prepared for graduate studies and careers in scientific and engineering fields. We emphasize a collaborative learning environment which allows students to thrive academically, build personal confidence, and develop interpersonal skills. We provide a Christian environment for students to learn values and judgment, and pursue integration of modern scientific knowledge and Christian faith.

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](#) to view which states allow online (distance education) outside of California.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU RECORDING NOTIFICATION

In order to enhance the learning experience, please be advised that this course may be recorded by the professor for educational purposes, and access to these recordings will be limited to enrolled students and authorized personnel. Note that all recordings are subject to copyright protection. Any unauthorized distribution or publication of these recordings without written approval from the University (refer to the Dean) is strictly prohibited.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See Academic Policies for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines allowed accommodations. The EAC makes accommodations available to professors at the student's request.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course. Accommodations are not retroactive so clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any special accommodations.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university withdrawal date or, after that date, receive an "F" grade.

CLASS ENROLLMENT

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

USE OF TECHNOLOGY

In order to be successful in the online or hybrid environment, you'll need to meet the minimum technology and system requirements; please refer to the *Technology and System Requirements* information. Additionally, students are required to have headphone speakers, microphone, or webcams compatible with their computer available to use. Please note that any course with online proctored exams requires a computer with a camera (tablets are not compatible nor allowable) to complete exams online. Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

SPIRITUAL CARE

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.

If students have questions, a desire to meet with the chaplain or have prayer requests you can contact the [Office of Spiritual Development](#).

Tentative Calendar (subject to updates)

