Point Loma Nazarene University
Department of Physics and Engineering
PHY 1054/L General Physics II and Lab (3 + 1 units)
MTWR: 9:55-12:05 (Latter Hall 2); Lab MTW 1:00-3:00 pm
Final Exam: Thursday, July 13 10 am - 1 pm
Summer Session 2, 2023: June 12 - July 13

Instructor: Dr. Paul D. Schmelzenbach
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Office hours: 9-10 am; 3-4:30 pm, RS258

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.

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.

Foundational Explorations 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.

Course Description
A general introduction to physics including electricity and magnetism, optics, and modern physics. The course is taught primarily at the algebra/trigonometry level but does require limited use of calculus. Meets the professional requirements of life and medical science majors.

Course Learning Outcomes
After completing this course, students can

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 create and interpret graphical representations of physical quantities (electric fields, ray diagrams etc.)
5. gather and interpret data in a lab setting

Foundational Experience & Course Learning Outcomes
This course is one of the components of the Foundational Experience program at Point Loma Nazarene University, through which students will acquire knowledge of human cultures and the physical and natural world while developing skills and habits that foster life-long learning. Specifically, this course supports this broader context in developing FELO 1e. Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature.

Required Texts and Materials
Physics: Principles and Applications, 7th edition by Giancoli; Scientific Calculator

Course Credit Hour Information
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 5 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request.

Assessment and Grading: The grade you earn in this course is based on the scale below. The points you receive during the course are weighted accordingly:

(2%) Preclass: In preparation for each class meeting, there is a reading assignment. Class meetings are not a standard lecture format, making these reading assignments especially important. Additionally, the summer session is quite compressed, making it imperative to come prepared to class. To complete the reading assignment, you must answer three questions and submit them electronically by 8:00 a.m. the day before class. Late submissions will not be accepted.

(20%) Lab: Hands-on experience of topics from class meetings is the focus of the lab, along with a focus on technique and data analysis. Labs will be performed in small groups, but everyone is responsible for submitting their own results. Labs constitute 20% of your final grade. You must pass the lab portion of the class to pass the class.

(18%) Homework: Most days, there will be homework due. Homework is worth 18% of your final grade. Practicing working physics problems is critical to your success in the class.

In summer school, you simply can't fall behind, so late homework will not be accepted for credit.

(35%) Exams (3): Three exams will be given during the semester.. Exams will include both multiple-choice or short answer conceptual questions, and problems to solve. Exams will be closed book, but a sheet of formulas will be provided. 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.

(25%) Final exam: The final exam is on Thursday, July 9, during class time. The final examination will be comprehensive, with an emphasis on the final material in the course.

A	B	C	D	F
A 92-100	B+ 87-89	C+ 77-79	D+ 67-69	F Less than 59
A- 90-91	B 83-86	C 73-76	D 63-66	
	B- 80-82	C- 70-72	D- 60-62	

Exams
Examinations and the Final Examination will include problems and questions over material assigned in the text, explored in homework, as well as material presented in class. Distributed specific learning outcomes for the section, or for the entire class will provide a good means of study. No examination shall be missed without prior consent or a well-documented emergency beyond your control. A score of zero will be assigned for an examination that is missed without prior consent or a well-documented emergency beyond your control.

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.

Late Assignments
As you may be aware, summer school is very fast-paced. Consequently, no late assignments will be awarded points unless prior arrangements have been made with the professor.

Incomplete grade assginement
Incompletes will only be assigned in extremely unusual circumstances. If you believe that your parituclar circumstances qualify be in clear communication with the professor as soon as you are able.

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 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. Faculty should follow and students may appeal using the procedure 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. 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 issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

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 and/or if they do not wish to utilize some or all of the elements of their AP in that course.

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.

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 drop 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.

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

Topics and Assignments at a glance:

Date	Topic	Reading	Hmk Due	Activity
6/12	Introductions and Charge	16-1 to 16-6		Lab 1: Electrostatics
6/13	Charge and the Electric Field	16.6-16.12	Hmk16a	Lab 2: Electric Field Hockey
6/14	Electric Potential	17-1 to 17-10	Hmk16b	Lab 3: Electric Potential Mapping
6/15	Electrical Current and Resistance	18-1 to 18-7	Hmk17	
6/19	Lab; Exam 1		Hmk18	Lab 4: Resistance
6/20	Electric Circuits	19-1 to 19-8		Lab 5: Circuits
6/21	Magnetism	20-1 to 20-10	Hmk 19	Lab 6: Slinky B field
6/22	Induction	21-1 to 21-7	Hmk 20	
6/26	Induction & Light Basics	22-1 to 22-7	Hmk 21	Lab 7: Electric Motors
6/27	Exam 2	23-1 to 23-3	Hmk22	Lab 8: Intro Optics
6/28	Geometric Optics	23-4 to 23-8		Lab 9: Lenses
6/29	Wave Optics	24-1 to 24-	Hmk 23	

Date	Topic	Reading	Hmk Due	Activity
		12		
7/03	Optical Instruments	25-1 to 25-9	Hmk24	Lab 10: Diffraction
7/04	Independence Day - No class			
7/05	Relativity	26-1 to 26-11	Hmk25	Lab 11: Optical Instruments
7/06	Exam 3		Hmk26	
7/10	Early Quantum Theory	27-1 to 27-13		Lab 12: H atoms
7/11	Quantum of Atoms	28-1 to 28-11	Hmk27	Lab 13: Radioactivity
7/12	Nuclear	30-1 to 30-11	Hmk28	Practice
7/13	Final Exam		Hmk30	