Point Loma Nazarene University PHY 1054 -- General Physics II 4 Units Fall 2020

PLNU Mission Statement

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.

Professor: Dr. Heide Doss
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E-mail: hdoss@pointloma.edu or plnuPhysicsDoss@gmail.com
Office Hours: MWF 11:00 AM – 1:00 PM, M 7:25-8:20, or by appointment.

Regular meeting times August 17, 2020 – December 4, 2020
Lecture: MWF 7:25 – 8:20 (if face-to-face: RS 265); NOTE: M online & exclusive office hours,
Labs: M 4:05-5:55 PM (if face-to-face: RS 265)

Final Exam: Monday 30 November 2020, 7:30 AM to 10:00 AM

Required Materials

- Text: Giancoli, Douglas, *Physics Principles with Applications*, 7th edition, Prentice Hall (2014)
- Calculator: A scientific calculator
- Laptop or computer access (canvas assignments, zoom meetings, creating presentations, etc)
- Equipment you will receive in the mail. ☺

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. Lectures and laboratory. Not repeatable. Letter grading.

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

Labs: lab meetings on Monday will provide you the opportunity for some experiences on topics from class meetings, improve lab technique, and data analysis. Labs are completed individually, but each groups will be required to discuss their results and come up with a group summary of the lab and a discussion that ties in results with the concepts/theory that is addressed in the experiment. Individual labs and group work are due on Fridays. Labs are worth 20% of your overall grade with the additional requirement that *you must pass the lab portion of the class to pass the class*.

Preclass Assignments: Reading and pre-class questions are due Tuesday nights by 11:59 PM. The pre-class questions are on our canvas website. These consist of items based on the reading assignment. Late submissions will not be accepted. Preclass assignments are 5% of the overall grade. NOTE it is a requirement to read the listed text materials before class.

Homework: Assignments include reading before class, and end-of chapter problems canvas. The end-of-chapter problems comprise the 10% of your overall grade labeled as "Homework" and are due every Monday by 11:59 PM unless otherwise noted.

Assignments: In this category are other assignments such as weekly group quizzes given in class, points earned during class for other items, and class projects that might come up during the semester. These assignments will comprise 5% of your overall grade. Classwork cannot be made up.

Late Work: Late work will not be accepted unless there is a documented emergency. Assignments are due as noted on the syllabus, in class, and on canvas. Incompletes are only assigned in extremely unusual circumstances.

Exams: There will be three 1 hour exams during the semester that will be equally weighted, (exams comprise 35% of your grade) and one comprehensive final exam (worth 25% of your overall grade). Partial credit for non-multiple choice problems 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. No make-up exams are allowed except for warranted circumstances.

You must take ALL the exams and the final in order to pass the class.

Missed Exam Policy: No make-up exams are allowed except for warranted circumstances. Arrangements must be made with me as soon as possible.

Final Exam: Date and Time: Monday 30 November 2020, 7:30 AM to 10:00 AM
The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in the course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for that particular student.

Final Grade: The points you receive during the course are weighted accordingly:

Component	Weight
Pre-Class	5%
Homework	10%
Assignments	5%
Lab	20%
Exams (3)	35% (equally weighted)
Final Exam	25%

The grade you earn in this course is based on the following scale:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-
S≥ 91.5	91.5 >S≥ 89.5	89.5 >S≥ 86.5	86.5 >S ≥ 82.5	82.5 >S≥ 79.5	79.5 >S≥ 76.5	76.5 >S≥ 72.5	72.5 >S≥ 69.5	69.5 >S≥ 66.5	66.5 >S≥ 62.5	62.5 >S≥ 59.5

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.

PLNU Attendance and Participation Policy:
Attendance is expected at each class session. In the event of an absence you are responsible for the material covered in class and the assignments given that day.

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report, which may result in 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 the appropriate grade for their work and participation. See http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Class_Attendance in the Undergraduate Academic Catalog.

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.

Academic Accommodations:
While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with

Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

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 any 4 unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request.

Copyright Protected Materials:
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 http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Academic_Honesty for definitions of kinds of academic dishonesty and for further policy information.

FERPA Policy: In compliance with federal law, neither PLNU student ID nor social security number should be used in publicly posted grades or returned sets of assignments without student written permission. This class will meet the federal requirements by distributing grades and papers individually. Also, in compliance with FERPA, you will be the only person given information about your progress in this class unless you have designated others to receive it in the "Information Release" section of the student portal. See Policy Statements in the undergrad academic catalog.

Tentative Syllabus – subject to updates Due dates on Canvas, in general Preclasses are due T by 11:59 PM, HWs are due M by 11:59 PM.

Date	Class Topics & Reading assignment	Assignments	Lab
Week 1	**Chapter 16**		
8/17/20 M	Read Chapter 16.1-9,11 and view the class video lectures.	Week 1: PC16 Week 1: HW16	No lab this week. Complete class discussion and course work.
8/19/20 W	Meet with ½ the class or entire class depending on class size		
6/21/20 F	Meet with ½ the class or entire class depenending on class size		
Week 2	**Chapter 17**		
8/24/20 M	Read Chapter 17.1-5,7-11 and view the class video lectures.	Week 2: PC17 Week 2: HW17	Lab 1: Investigation of Electric Fields and Coulomb's Law
8/26/20 W	Meet with ½ the class or entire class depending on class size		
6/28/20 F	Meet with ½ the class or entire class depending on class size		
Week 3	**Chapter 18**		
8/31/20 M	Read Chapter 18.1-7,10 and view the class video lectures.	Week 3: PC18 Week 3: HW18	Lab 2: Electric Fields & Electric Potential
9/2/20 W	Meet with ½ the class or entire class depending on class size		
9/4/20 F	Meet with ½ the class or entire class depending on class size		
Week 4	**Chapter 19**		
9/7/20 M	Read Chapter 19.1-8 and view the class video lectures.	Week 4: PC19 Week 4: HW19	Lab 3: Circuits
9/9/20 W	Meet with ½ the class or entire class depending on class size		
9/11/20 F	Meet with ½ the class or entire class depending on class size		
Week 5	**Chapter 20**		
9/14/20 M	**Monday Exam 1 (Chapters 16-19)** Read Chapter 20.1-10 and view the class video lectures.	Week 5: PC20 Week 5: HW20	Lab 4: Introduction to Magnets
9/16/20 W	Meet with ½ the class or entire class depending on class size		
9/18/20 F	Meet with ½ the class or entire class depending on class size		
Week 6	**Chapter 21**		
9/21/20 M	Read Chapter 21.1-7 and view the class video lectures	Week 6: PC21 Week 6: HW21	Lab 5: Faraday
9/23/20 W	Meet with ½ the class or entire class depending on class size		
9/25/20 F	Meet with ½ the class or entire class depending on class size		
Week 7	**Chapter 22**		
9/28/20 M	Read Chapter 22.1-7 and view the class video lectures.	Week 7: PC22 Week 7: HW22	Lab 6: Motors (materials for everyone)
9/30/20 W	Meet with ½ the class or entire class depending on class size		
10/2/20 F	Meet with ½ the class or entire class depending on class size		
Week 8	**Chapter 23**		
10/5/20 M	Read Chapter 23.1-8 and view the class video lectures	Week 8: PC23 Week 8: HW23	Lab 7: Geometric Optics
10/7/20 W	Meet with ½ the class or entire class depending on class size		

10/9/20 F	Meet with ½ the class or entire class depending on class size		
Week 9	**Chapter 24**		
10/12/20 M	**Monday Exam 2 (Chapters 20-23)** Read Chapter 24.1,3-8,10 and view the class video lectures	Week 9: PC24 Week 9: HW24	Lab 8: Diffraction
10/14/20 W	Meet with ½ the class or entire class depending on class size		
10/16/20 F	Meet with ½ the class or entire class depending on class size		
Week 10	**Chapter 25**		
10/19/20 M	Read Chapter 25.1-9,12 and view the class video lectures	Week 10: PC25 Week 10: HW25	Lab 9: Optical Devices
10/21/20 W	Meet with ½ the class or entire class depending on class size		
10/23/20 F	Meet with ½ the class or entire class depending on class size		
Week 11	**Chapter 27**		
10/26/20 M	Read Ch 27.1-13 and watch the class video lectures.	Week 11: PC27 Week 11: HW27	Lab 10: Photon Interaction
10/28/20 W	Meet with ½ the class or entire class depending on class size		
10/30/20 F	Meet with ½ the class or entire class depending on class size		
Week 12	**Chapter 28**		
11/2/20 M	Read Chapter 28.1-8,11 and view the class video lectures	Week 12: PC28 Week 12: HW28	Lab 11: Atomic Spectrum
11/4/20 W	Meet with ½ the class or entire class depending on class size		
11/6/20 F	Meet with ½ the class or entire class depending on class size		
Week 13	**Chapter 30**		
11/9/20 M	**Monday Exam 3 (Chapters 24-25,27-28)** Read Chapter 30.1-11,13 and view the class video lectures	Week 13: PC30 Week 13: HW30	Lab 12: Radioactivity
11/11/20 W	Meet with ½ the class or entire class depending on class size		
11/13/20 F	Meet with ½ the class or entire class depending on class size		
Week 14	**Chapter 26**		
11/16/20 M	Read Chapter 26.1-11 and view the class video lectures.	Week 14: PC26	Lab 13: Relativity
11/18/20 W	Meet with ½ the class or entire class depending on class size		
11/20/20 F	Meet with ½ the class or entire class depending on class size		
Week 15	**Project, Review**		
11/23/20 M	Project, Review	CLASS FINAL	Lab: Review
11/25/20 W	Thanksgiving Break		
11/27/20 F	Thanksgiving Break		
Week 16	**FINALS**		
11/30/20 M	**Final Exam 7:30 AM to 10:00 AM**		No Lab