PHY142: General Physics II (4 hr) Summer 2016

Department of Physics and Engineering

Instructor: Dr. Paul D. Schmelzenbach	Meeting: 10:00-12:00 MTWR (LH 01)
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Materials – *Physics* by Douglas Giancoli, 7th edition, and a calculator

Description – General Physics II is the second part of a one-year introductory course designed for the student with a moderate mathematical background. The main topics covered in this semester include: electricity, magnetism, circuits, light, relativity, atoms, nuclei, and radiation.

Learning Objectives –In this course there are a number of specific goals for you to meet from each chapter. These smaller goals fit into the following overall course learning objectives. Once you complete this course, you should be able to:

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 (electric fields, ray diagrams etc.)
6. gather and interpret data in a lab setting

Class Meetings –

Before Class: In preparation for each class meeting there is a reading assignment. Because class meetings are not a standard lecture format, these reading assignments are very important. In addition summer session is quite compressed and it is 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 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 5% of the final grade.

Attendance: Some activities through this course occur only during class time and cannot be made-up. Let me know in advance if you must miss class. Attendance is one factor used in determining borderline grades. If absences become excessive, you will be required to meet with me and the situation will be dealt with on a case-by-case basis. In summer school remember missing a day is more like missing a week.

Lab – 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 preformed in small groups, but each individual is responsible for submitting his or her own results. Labs are worth 20% of your final grade. You must pass the lab portion of the class to pass the class.

Homework – Most days there will be homework due, homework is worth 15% of your final grade. Practicing working physics problems is critical to your success in the class.

Exams – Three examinations will be given during the semester on June 20, June 28 and July 7. The final examination is on Thursday, July 14 at 10:00 am. Exams will be about half multiple-choice or short answer conceptual questions, and about half problems to solve. The final examination will be comprehensive. 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 a solution or explanation, no credit will be given for an answer alone; the method or reasoning must also be shown.

Final Grades – The grade you earn in this course is based on the scale shown to the right. The points you receive during the course are weighted accordingly:

- Preclass: 5%
- Homework/Activities: 15%
- Lab: 20%
- Tests (3): 35%
- Final Exam: 25%

A	100 - 91.0
A-	91.0 - 89.5
B+	89.5 - 87.5
B	87.0 - 81.0
B-	81.0 - 79.5
C+	79.5 - 77.5
C	77.0 - 71.0
C-	71.0 - 69.5
D+	69.5 - 67.5
D	67.0 - 61.0
D-	61.0 - 57.0

As with all courses at PLNU, this course supports the cause to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Academic Integrity – 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.

Academic Accommodations – If you have a diagnosed disability, please contact PLNU's Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619-849-2486 or by e-mail at DRC@pointloma.edu. See Disability Resource Center for additional information.

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.

FERPA Policy As a student at Point Loma, you have a legal right to privacy as outlined in the federal FERPA (Family Educational Rights and Privacy Act) legislation. See Policy Statements for full text.

Course Calendar

	Topics	Reading	Lab
6/13	Charge and Electric Field	16-1 to 16-9	Lab 1: Electric Fields
6/14	Electric Field and Potential	17-1 to 17-9	Lab 2: Electric Potential
6/15	Electric Potential; Current	18-1 to 18-7	Lab 3: Electric Potential Mapping
6/16	Circuits	19-1 to 19-7	
6/20	Circuits; Exam 1		Lab 4: Circuits (morning)
6/21	Magnetism	20-1 to 20-7	Lab 5: Slinky
6/22	Electromagnetic Induction	21-1 to 21-7	Lab 6: Motor
6/23	EM Waves; Geometric Optics I	22-1 to 23-4	
6/27	Geometric Optics II	23-1 to 23-8	Lab 7: Optics
6/28	Exam 2; Wave optics	24-1 to 24-3	Lecture: Waves
6/29	Wave Optics	24-4 to 24-10	Lab 8: Diffraction
6/30	Optical Instruments	25-1 to 25-9	
7/4	Independence Day - No class		
7/5	Relativity	26-1 to 26-11	Lab 9: Relativity
7/6	Early Quantum Theory	27-1 to 27-13	Lab 10: Optical Instruments
7/7	Exam 3		
7/11	Quantum of Atoms	28-1 to 28-8	Lab 11: H spectra
7/12	Nuclear I	30-1 to 30-11	Lab 12: Radioactivity
7/13	Nuclear II	31-1 to 31-5	Lab 13: Review
7/14	Final Exam		