Point Loma Nazarene University
Phy142: General Physics II
4 credits
Lecture: MWF 10:55-12:05, T-106
Lab: 2:45M, 10:00T, 12:45T RS213 Spring 2017

NOTE – This syllabus is heavily adapted from one provided by Dr. Paul S.

Ronald DeLap, Ph.D.
Phone extension x2375, e-mail: rondelap@pointloma.edu
Office Hours: 1-2PM M-W-Th and by apt RS210
Class Materials:

Textbook – *Physics* by Douglas Giancoli, 7th edition
Calculator
Access to Mastering Physics. (Online Asset, details provided in class)

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. Lecture and laboratory. Not repeatable. Letter grading. **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 (motion graphs, vectors, standing waves, etc.)
6. gather and interpret data in a lab setting

Final Grades – The grade you earn in this course is based on the scale shown below. At any point during the class I will be happy to provide you with a grade update.

A	**91-100**
A-	**89.5-91**
B+	**87-89.5**
B	**81-87**
B-	**79.5-81**
C+	**77-79.5**
C	**71-77**
C-	**69.5-71**
D+	**67-69.5**
D	**61-67**
D-	**58-61**
F	**0-61**

Pre Class Work: In preparation for most class meetings there will be a pre-class reading assignment, which will be posted to Canvas. These reading assignments are very important. To complete the reading assignment, you must answer three questions and submit them electronically by 10:00 a.m. before class. Late submissions will not be accepted. 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.

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 performed 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.

Quizzes – Quizzes will be given from time to time, usually unannounced, and cannot be made up without a pre-approved class absence.

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 over material through the class will be given. 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.

The points you receive during the course are weighted as follows:

-Preclass:	**5%**
-Quizzes	**5%**
-Lab:	**20%**
-Homework:	**15%**
-Tests (3)	**30%**
-Final Exam:	**25%**

The Final Exam is scheduled (no exceptions) on May 3, from 10:30-1PM

Late Work. Late work is not accepted without a pre-approved excuse. This includes

- homework (due at the beginning of class on the assigned date)
- class pre-work (due at the beginning of class on the assigned date)
- quizzes (makeups are not allowed without an approved excuse ***prior to*** the quiz)
- exams (makeups are not allowed without an approved excuse ***prior to*** the exam)

Exceptions to the above policies, while rare, will be at the instructor's discretion. Note that some quizzes may be unannounced and cannot be made up for unexcused absences.

University Mission:
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.

Attendance:

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:
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. For more details see the PLNU catalog:
http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Academic_Accommodations

Students with learning disabilities who may need accommodations should discuss options with the instructor during the first two weeks of class.

Academic Honesty:
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.

Final Exam: Date and Time:
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.

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.

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. Specific details about how the class meets the credit hour requirements can be provided upon request.

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.

Tentative Class Schedule

	Topics	Reading
1/10	Intro and Charge	16.1-16.3
1/11	Coulomb's Law	16.5-16.6
1/13	The Electric Field	16.7-16.9
1/18	Electric Potential	16.11; 17.1-17.3
1/20	Electric Potential II	17.4-17.5
1/23	Capacitance	17.7-9
1/25	Batteries, Circuits, Resistors	18.1-18.3
1/27	Resistivity and Electric Power	18.4-18.7
1/30	DC Circuits: Parallel and Series	19.1-19.2
2/1	Kirchoffs Rules; Capacitors	19.3; 19.5-19.7
2/3	Intro to Magnetic Fields	20.1-20.2; Review
2/6	Exam #1: Chapters 16-19	
2/8	Magnetic Fields and forces	20.3-20.5
2/10	More Forces and B Fields,	20.6-20.7; 20.10
2/13	More Forces and B Fields,	20.12, 21.1-21.2
2/15	EMF Generators	21.3-21.6
2/17	Transformers and Induction	21.7-21.8
2/20	EM waves	22.1-22.4
2/22	Plane Mirrors and review	23.1-23.2
2/24	Spherical Mirrors, index of refraction	23.3-23.4
2/27	Snell's Law and Lenses	23.5-23.8
3/1	Wrap up and review	
3/3	Exam #2: Chapters 20-23	
3/13	Diffraction Gratings, Thin Films	24.5-6; 24.8
3/15	Polarization; Blue Sky; Cameras	24.10, 24.12; 25.1
3/17	Human Eye; Magnifiers	25.2-25.3
3/20	Telescopes; Resolution	25.4; 25.7-9
3/22	Relativity part 1	26.1-26.3
3/24	Relativity Part 2	26.4-26.5
3/27	Relativity part 3	26.7-26.11
3/29	Early Quantum Theory	27.1-27.4
3/31	Waves-Particles; Model of atom	27.6-27.8; 27.10
4/3	Atoms and wrap up	27.11-27.13
4/5	Review	
4/7	Exam #3: Chapters 24-27	
4/10	QM; Uncertainty	28.1-3; 28.5-6
4/12	QM; Uncertainty	28.7-8; 28.10-11
4/14	Radioactivity and alpha decay	30.1-30.4
4/19	alpha, beta, gamma decay; dating	30.5-30.10
4/21	Fission	30.11; 31.1-2
4/24	Fusion; Radiation and the Body	31.3-7
4/26	PET, NMR, MRI; review	31.9; 33.1-33.2
4/28	Review	
5/3	Final Exam, 10:30AM-1:00PM (Wed)	