



**Department/School Name:**  
Physics and Engineering

**Course Number and Name:**

**PSC1014 - Physical Science  
For Teachers**

**Number of Units: 4**

**Class Time/Location: MWF  
1:30-2:35 PM**

**Taylor Hall 106**

**Fall 2022**

<b>Instructor: Dr. Anthony Cortez</b>	<b>Instructor: Dr. Kelly Hunter</b>
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<b>Office hours:</b> MWF 8:45am-9:45am Thur. 2:30pm-3:30pm By Appointment via Google Calendars	
<b>Location: Rohr Science 282</b>	

### **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.

#### **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.

### **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.

### **COURSE DESCRIPTION**

PSC 1014 - Physical Science For Teachers (4)

An introductory survey of selected principles in physics and chemistry with a discussion of related societal and environmental issues. This course focuses on topics necessary for the California multiple subject teaching credential (K-8). This class is highly interactive and will make use of many hands on activities. Meets a Foundational Explorations requirement; does not count toward the Chemistry or Physics major.

Pre or Corequisite: MTH 1013 or equivalent.

### **COURSE LEARNING OUTCOMES**

1. explain observations of the natural world in terms of chemistry and physics,
2. translate the description of problems into the equations required to solve them using relevant physical principles,
3. find solutions to problems once appropriate equations or techniques are identified,
4. create and interpret graphical representations of quantities,
5. recognize appropriate teaching techniques to convey scientific ideas and practices,
6. develop content expertise in the "Physical Science Disciplinary Core Ideas" described in the Next Generation Science Standards

### **REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES**

*Physical Science* by Bill W. Tillery. 12th Ed.

A scientific calculator

**NOTE:** Students are responsible to have the required textbooks prior to the first day of class. Students are also encouraged to begin reading the books in preparation for the class as soon as possible.

*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. All supplemental materials posted on this course site (including articles, book excerpts, or other documents) are provided for your personal academic use. These materials may be protected by copyright law and should not be duplicated or distributed without permission of the copyright owner.*

## **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 fifteen 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.

## **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.

## **ASSESSMENT AND GRADING**

### **Graded Components**

- **Homework:** Homework will be assigned on even weeks and the homework will be due in class at the start of class on Friday of the following week.
- **Quizzes** A quiz will be assigned in class during even weeks.
- **Examinations and the Final Examination.** Examinations and the Final Examination will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class. 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. 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.

<b>Grading Distribution</b>	<b>Percent</b>
Homework	20
Quizzes	20
Midterm Exam	30
Final Exam	30
Total	100

### **Grading Scale**

Grades are based on the number of points accumulated throughout the course with the following exception. Approximate minimal percentages required to obtain a given grade are:

<b>Standard Grade Scale Based on Percentages</b>					
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
+		86.5- 89.5	76.5-79.5	66.5-69.5	
	91.5 -100	81.5-86.5	72.5-76.5	62.5 -66.5	0-59.5
-	89.5-91.5	79.5-81.5	69.5-72.5	59.5-62.5	

### **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.

## **LATE ASSIGNMENTS**

All assignments are to be submitted by the due dates. Assignments will be considered late if posted after the due date and time using Pacific Standard Time. Late assignments will receive a grade of 0.

## **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 [ADC Academic and General Policies](#) [Links to an external site.](#) 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](mailto: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 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 Links to an external site.](#)

## 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 the appropriate grade for their work and participation.

## PLNU USE OF TECHNOLOGY

In order to be successful in the online environment, students need to meet the minimum technology and system requirements; please refer to the [Technology and System Requirements Links to an external site.](#) information. If a student is in need of technological resources please contact [student-tech-request@pointloma.edu](mailto:student-tech-request@pointloma.edu)

*Problems with technology do not relieve students of the responsibility of participating, turning in assignments, or completing class work.*

Date	TOPIC	READING	HW	QUIZ
30-Aug (WEEK 1)	Introductions - Science	Ch 1		
31-Aug	Forces and Motion I	2.1-2.3		
2-Sep	Forces and Motion II	2.4-2.6		
5-Sep (WEEK 2)	Labor Day No Class			
7-Sep	Forces and Motion III	2.7-2.9		Quiz 1
9-Sep	Energy I	3.1-3.3		
12-Sep (WEEK 3)	Energy II	3.3-3.4		
14-Sep	Heat and Temperature I	4.1-4.5		
16-Sep	Heat and Temperature II	4.4-4.5	HW 1	

19-Sep (WEEK 4)	Review			Quiz 2
21-Sep	Midterm			
23-Sep	Waves and Sound I	5.1-5.3		
26-Sep (WEEK 5)	Waves and Sound II	5.4-5.6		
28-Sep	Electricity I	6.1-6.2		
30-Sep	Electricity II	6.3-6.4	HW 2	
3-Oct (WEEK 6)	Electricity III	6.5-6.6		
5-Oct	Light I	7.1-7.2		Quiz 3
7-Oct	Light II	7.3-7.4		
10-Oct (WEEK 7)	Light III	7.1-7.2		
12-Oct	Light IV	7.3-7.4		
14-Oct	Review		HW 3	
17-Oct (WEEK 8)	Physics Final Exam (TBD)			

End Quad I-Physics portion.

Quad II-Chemistry portion to follow.