POINT 1902 LOMA
NAZARENE UNIVERSITY

Physics and Engineering
School of STEM

PSC 1004 - Cosmos

Number of Units: 4

Fall 2025

Meeting days/times (MWF 8:30 am – 9:35 am)

Meeting location (Fermanian 104)

Final Exam: (Monday, 12/15, 7:30 – 10:00 am)

Instructor Title and Name: Dr. Anthony Cortez
Phone: 619-849-2439
Email: acortez@pointloma.edu
Office Location and Office Hours: Rohr Science 282 by Appointment

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

PHE: The Department of Physics & Engineering provides strong programs of study that aid in ensuring our students are well prepared for both graduate studies and careers in a variety of scientific and engineering fields. We emphasize a collaborative learning environment that allows students to thrive academically, build personal confidence, and develop interpersonal skills, while providing a Christian setting for students to learn values and judgment and pursue integration of modern scientific knowledge and Christian faith.

General Education 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

PSC 1004 The Cosmos (FE) (4 Units)
An introduction to our place in the universe emphasizing religious, cultural and historic perspectives including modern developments in physics and astronomy.
Meets a Foundational Explorations requirement; does not count toward any Chemistry or Physics majors.
Prerequisite(s): MTH 0099 or equivalent.

Program and Course Learning Outcomes

Course Learning Outcomes:

1. Apply basic scientific principles to address topics in cosmology and astronomy
2. Explain observations of the cosmos in terms of scientific processes
3. Apply a scientific approach to ask and address questions about our planet, galaxy, and universe
4. Solve qualitative and quantitative problems relevant to introductory astronomy
5. Discuss how modern science relates to human culture and the origins of cosmology

General Education Learning Outcomes

The GE Learning Outcome assessed in this class is: GELO 1e. Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature.

The Signature Assignment for assessing this GELO is: Questions on the Final Exam

Required Texts and Recommended Study Resources

Understanding Our Universe - With Access By Palen 4TH Edition

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.

Assessment and Grading

Grades will be based on the following:

- **Homework**: Homework will be assigned weekly and is due at the start of class the following week.
- **Activities**: Through the semester there will be small projects/worksheets aligned with the textbook for you to complete.

- **Examinations and the Final Examination**. There will be 4 in semester exams and one final exam. 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.

Grading Distribution	Percent
Activities	25
Homework	25
3 In-Semester Exams	30
Final Exam	20
Total	100

Sample Standard Grade Scale Based on Percentages

Standard Grade Scale Based on Percentages					
	A	B	C	D	F
+		87- 89	77-79	67-69	
	91 -100	83-86	73-76	63-66	0-59
_	90-92	80-82	70-72	60-62	

Final Examination Policy

Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the Traditional Undergraduate Records: Final Exam 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.

Incompletes and 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.

Artificial Intelligence (AI) Policy

You are allowed to use Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc) to generate ideas, but you are not allowed to use AI tools to generate content (text, video, audio, images) that will end up in any work submitted to be graded for this course. If you have any doubts about using AI, please gain permission from the instructor.

PLNU Academic Accommodations Policy

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). 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 619-849-2533). Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines allowed accommodations. Professors are able to view a student's approved accommodations through Accommodate.

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. Accommodations are not retroactive so clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

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. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any accommodations.

Additional Course Information

Additional PLNU policies and practices that apply to this course can be found at the following link: https://docs.google.com/document/d/11BgAANLOJ9tjt837d24EZ181ukM2qzHF/edit

Tentative Schedule (Subject to Change)

Date	Topic	Reading
1-Sep	No Class	
3-Sep	Introductions	
5-Sep	Our Place in the Universe	1.1-1.3
8-Sep	Patterns in the Sky: Vocab and Seasons	2.1-2.2
10-Sep	Patterns in the Sky: Moon	2.3-2.4
12-Sep	Moon Phase Simulator - Activity	
15-Sep	Laws of Motion I	3.1-3.2
17-Sep	Laws of Motion II	3.3-3.4
19-Sep	Laws of Motion III	3.4-3.5
22-Sep	Light and Telescopes I	4.1-4.3
24-Sep	**Exam 1**	
26-Sep	Light and Telescopes II	4.3
29-Sep	The Formation of Stars and Planets I	5.1-5.3
1-Oct	The Formation of Stars and Planets II	5.4-5.6
3-Oct	Inner Solar System I	6.1-6.3
6-Oct	Inner Solar System II	6.4-6.5
8-Oct	Atmospheres I	7.1-7.3
10-Oct	Atmospheres II	7.3-7.5
13-Oct	Giant Planets I	8.1-8.3
15-Oct	Giant Planets II	8.3-8.5
17-Oct	Smaller Bodies I	9.1-9.3
20-Oct	Smaller Bodies II	9.4-9.6
22-Oct	**Exam 2**	
24-Oct	Fall Break (No Class)	
27-Oct	Measuring the Stars I	10.1-10.2
29-Oct	Measuring the Stars II	10.3-10.4
31-Oct	The Sun I	11.1-11.2
3-Nov	The Sun II	11.3-11.4
5-Nov	Low Mass Stars I	12.1-12.3
7-Nov	Low Mass Stars II	12.4-12.6
10-Nov	High Mass Stars I	13.1-13.3
12-Nov	High Mass Stars and Black Holes	13.4-13.6
14-Nov	Measuring Galaxies I	14.1-14.2
17-Nov	Measuring Galaxies II	14.3-14.4
19-Nov	Dark Matter I	15.1-15.2
21-Nov	Dark Matter II	15.3-15.4
24-Nov	**Exam 3**	
26-Nov	Thanksgiving (No Class)	
28-Nov	Thanksgiving (No Class)	
1-Dec	The Universe I	16.1-16.3

3-Dec	The Universe II	16.4-16.6
5-Dec	Structure I	17.1-17.3
8-Dec	Structure II	17.4-17.5
10-Dec	Life in the Universe I	18.1-18.4
12-Dec	Review	
15-Dec	**Final Exam**	

LomaBooks Instructions for Students

This course is part of our course material delivery program, **LomaBooks***. The bookstore will provide each student with a convenient package containing all required physical materials; all digitally delivered materials will be integrated into Canvas.*

You should have received an email from the bookstore confirming the list of materials that will be provided for each of your courses and asking you to select how you would like to receive any printed components (in-store pick up or home delivery). If you have not done so already, please confirm your fulfillment preference so the bookstore can prepare your materials.

For more information about **LomaBooks,** *please go: HERE*