



Physics and Engineering

PSC1004 Cosmos

4 Units

Fall 2020

Instructor: Prof. Chris Gabler

Phone: 858.354.8762

Email: cgabler@pointloma.edu

Office hours: M - W - 12:00 pm, F - 10:55 am- 12:00 pm via Zoom meeting: Web Conference ID: 960 5210 1021

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

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.

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)

COURSE DESCRIPTION

An introduction to our place in the universe emphasizing religious, cultural, and historic perspectives including modern developments in physics and astronomy. (Meets a general education requirement; does not count toward any Chemistry or Physics majors.)

CLASS MEETING INFORMATION

Zoom Web Conference ID: 960 5210 1021 MWF at 10:55 am

PSC1004-1 Fa20 - The Cosmos MWF class - 10:55 am - 12:10 pm
Zoom Web Conference Synchronous Meeting for PSC 1004 Fa020 Course.

Purpose: Instructional and Educational meeting.

FOUNDATIONAL EXPLORATION

This is a PLNU Foundational Explorations course (a general education course).

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.

COURSE LEARNING OUTCOMES

Upon completion of this course students will be able to:

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, solar system, galaxy, and universe.
4. Solve quantitative and qualitative problems relevant to introductory astronomy and interpret solutions.
5. Discuss how modern science relates to human culture and the origins of cosmology.

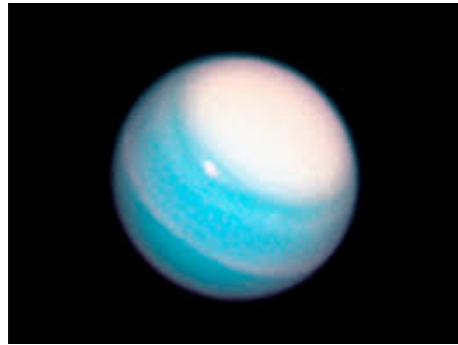
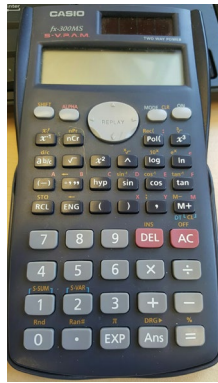
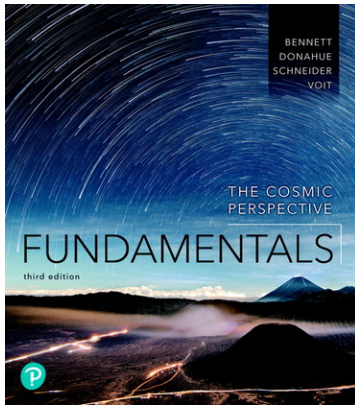
REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

[The Cosmic Perspective Fundamentals by Bennett, Donahue, Schneider, & Voit, 3rd edition, Pearson 2020 \(Links to an external site.\)](#)

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)

Access to [Mastering Astronomy \(Links to an external site.\)](#): gabler26504, Course Name: PSC 1004 Fa2020

A **scientific calculator** (not a phone app) is also needed for the course. It does not need to be fancy. For example, a TI-30XIIS is good and only runs about \$15.



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 sixteen weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

Distribution of Student Learning Hours	
Category	Time Expectation in Hours
Attending Synchronous Class Sessions (1-2 per week) - Note that you will be divided into two groups.	21.5
Watching Videos	28
Group Activities/Project	17
Homework Problems	54

Distribution of Student Learning Hours	
Category	Time Expectation in Hours
Reading	12
Test Preparation	18
Total Hours	150.5

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)

ASSESSMENT AND GRADING

Graded Components

- **Homework:** You will have weekly homework assignments which will be due Friday of the following week (see assignment schedule).
- **Group Activities:** You will have short group activities most week. They will generally be due on Sundays.
- **Group Project:** You will have one group project leading to a PowerPoint presentation near the end of the semester.
- **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.
- **Late work will not be accepted** without prior consent or a well-documented emergency. Up to a maximum of one homework assignment will be accepted up to 3 days late, provided that consent is received from the professor before it is due.
- Homework assignments that are submitted late without prior consent will be recorded with a score of zero. If more than half of the homework assignments are submitted on time, then the lowest homework score will be dropped from the calculations of the homework grade.
- The examination schedule is included in the daily schedule. This instructor does not intend to accept excuses such as poor communication with parents, benefactors, surf team sponsors and/or travel agents.

Grading Distribution	Percent
Homework	30
Group Activities	10

Group Project	5
Three Exams (10% each)	30
Final Exam	25
Total	100

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)

Grading Scale

Grades are based on the number of points accumulated throughout the course with the following exception. A student must pass at least one of Exam 1, Exam 2, Exam 3, or the Final Exam to pass the class.

That is, a score of 60% must be achieved on one of the Exams, or else the final grade will be an F regardless of all other point totals. Approximate minimal percentages required to obtain a given grade are:

Standard Grade Scale Based on Percentages					
	A	B	C	D	F
+		87.5- 90	77.5-80	67.5-70	
	92.5 -100	82.5-87.5	72.5-77.5	62.5 -67.5	0-60
_	90-92.5	80-82.5	70-72.5	60-62.5	

STATE AUTHORIZATION

During the COVID-19 pandemic, this restriction does not apply. 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.

INCOMPLETE AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)

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 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.

PLNU ACADEMIC ACCOMMODATIONS POLICY

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 have 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 of the elements of their AP in a 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.

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)

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 [Academic Policies](#) for further information about class attendance.

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](#)

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)

Online PSC 1004 Class Schedule (Tentative Fall 020 Schedule)

Before Class	Monday	Tuesday	Wednesday	Thursday	Friday	After Class
Videos: Course Orientation	17-Aug Groups A and B Divide class into groups	18-Aug	19-Aug Group A Class Intro	20-Aug	21-Aug Group B Class Intro	Intro HW - Mastering Group Activity
Videos: Video Chapter 1 Video Chapter 2	24-Aug Group A Discuss Chapter 1 Discuss Chapter 2	25-Aug	26-Aug Group B Discuss Chapter 1 Discuss Chapter 2	27-Aug	28-Aug Groups A and B Office Hours	Homework Chapter 1 Homework Chapter 2 Group Homework Ideas
Videos: Video Chapter 3 Video Chapter 4	31-Aug Group A Discuss Chapter 3 Discuss Chapter 4	1-Sep	2-Sep Group B Discuss Chapter 3 Discuss Chapter 4	3-Sep	4-Sep Groups A and B Office Hours	Homework Chapter 3 Homework Chapter 4 Group Exam Ideas
Exam preparation	7-Sep Groups A and B Exam Review (all class)	8-Sep	9-Sep Groups A and B EXAM #1	10-Sep	11-Sep Groups A and B Office Hours	
Videos: Video Chapter 5 Video Chapter 6	14-Sep Group A Discuss Chapter 5 Discuss Chapter 6	15-Sep	16-Sep Group B Discuss Chapter 5 Discuss Chapter 6	17-Sep	18-Sep Groups A and B Office Hours	Homework Chapter 5 Homework Chapter 6 Group Activity
Videos: Video Chapter 7 Video Chapter 8	21-Sep Group A Discuss Chapter 7 Discuss Chapter 8	22-Sep	23-Sep Group B Discuss Chapter 7 Discuss Chapter 8	24-Sep	25-Sep Groups A and B Office Hours	Homework Chapter 7 Homework Chapter 8 Group Activity
Videos: Video Chapter 9	28-Sep Group A Discuss Chapter 9 Exam Prep Information Organizing Star/Galaxy Groups	29-Sep	30-Sep Group B Discuss Chapter 9 Exam Prep Information Organizing Star/Galaxy Groups	1-Oct	2-Oct Groups A and B Office Hours	Homework Chapter 9 Group Organization
Exam preparation	5-Oct Groups A and B Exam Review (all class)	6-Oct	7-Oct Groups A and B EXAM #2	8-Oct	9-Oct Groups A and B Office Hours	Group Project Update
Videos: Video Chapter 10	12-Oct Group A Discuss Chapter 10 Discuss Project Questions	13-Oct	14-Oct Group B Discuss Chapter 10 Discuss Project Questions	15-Oct	16-Oct Groups A and B Office Hours	Homework Chapter 10 Group Project Update
Videos: Video Chapter 11 Video Chapter 12	19-Oct Group A Discuss Chapter 11 Discuss Chapter 12	20-Oct	21-Oct Group B Discuss Chapter 11 Discuss Chapter 12	22-Oct	23-Oct Groups A and B Office Hours	Homework Chapter 11 Homework Chapter 12 Group Project Update
Videos: Video Chapter 13	26-Oct Group A Discuss Chapter 13 Project Question Check-in Exam Prep Information	27-Oct	28-Oct Group B Discuss Chapter 13 Project Question Check-in Exam Prep Information	29-Oct	30-Oct Groups A and B Office Hours	Homework Chapter 13 Group Project Draft
Exam preparation	2-Nov Groups A and B Exam Review (all class)	3-Nov	4-Nov Groups A and B EXAM #3	5-Nov	6-Nov Groups A and B Office Hours	Group Draft Modification
Videos: Video Chapter 14 Video Chapter 15	9-Nov Group A Discuss Chapter 14 Discuss Chapter 15 Presentation Questions	10-Nov	11-Nov Group B Discuss Chapter 14 Discuss Chapter 15 Presentation Questions	12-Nov	13-Nov Groups A and B Office Hours	Homework Chapter 14 Homework Chapter 15 Presentation Organize
Finish Presentations	16-Nov Group A Stars or Galaxy Presentation	17-Nov	18-Nov Group B Stars or Galaxy Presentation	19-Nov	20-Nov Groups A and B Office Hours	Final Review Questions
Final Exam Review	23-Nov Groups A and B Final Exam Review (all class)	24-Nov	25-Nov Thanksgiving	26-Nov	27-Nov Thanksgiving	Study for Final Exam
Study for Final Exam	30-Nov	1-Dec	2-Dec	3-Dec	4-Dec Groups A and B 7:30-10:00 AM FINAL EXAM	

(Disclaimer: There may be changes and alterations with some aspects of the course syllabus over the course of the semester.)