Syllabus

To-Do Date: Mar 1 at 11:59pm

	MICS
19☐02 POINT LOMA NAZARENE UNIVERSITY	**MTH 4002: Topics in Geometry**
	2.0 units
Spring 2021 1:30 -2:25 T & TH	

Instructor: Dr. Catherine Crockett, Ph.D.
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Email: catherinecrockett@pointloma.edu
Office hours: By Appointment in Zoom. Please email with times/ days.

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

The Mathematical, Information, and Computer Sciences department at Point Loma Nazarene University is committed to maintaining a curriculum that provides its students with the tools to be productive, the passion to continue learning, and Christian perspectives to provide a basis for making sound value judgments.

COURSE DESCRIPTION

A study of the foundations of geometry, Affine, non-Euclidean and projective geometries. A synthetic development of advanced Euclidean geometry including geometric transformations, convexity, and constructions.

COURSE LEARNING OUTCOMES -

- Students will be able to demonstrate facility with analytical concepts.
- Students will be able to write proofs.
- Students will be able to apply their mathematical knowledge to solve problems.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

Taxicab Geometry: An Adventure in Non-Euclidean Geometry by Eugene F. Krause

Exploring Advanced Euclidean Geometry with GeoGebra by Gerard A. Venema

- A straight edge and a compass
- Laptop or access to a computer with Java enable in the web browser
- GeoGebra- free software, download at **https://www.geogebra.org/download (https://www.geogebra.org/download)**

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 2 unit class delivered over 15 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

Category	Time Expectation in Hours
Class Participation in Discussions, Groups, etc.	13.75
Reading Assignments	22
Homework	28
Other Assignments & Learning Activities	10
Mid Term, Final Exam	3.5
Total Hours	77.25

ASSESSMENT AND GRADING

Graded Components

- **Homework:** The homework is designed to allow you to master the concepts of Geometry; it is not an end in itself. Assignments will be announced on Tuesday and Thursday. The work ill be submitted as two portfolios. The first portfolio containing the Taxi-Cab problems will be submitted on or before April 6,2021. The second portfolio containing the problems from Euclidean Geometry will be submitted on or before May 25, 2021 . Late submission of a portfolio will be assessed a deduction where n = the number of weekdays late. The day counter for late work begins at the start of class on the weekday it is due. For example, a portfolio submitted at 3:30 on the first weekday after the due date will incur a two day late penalty deduction of 20%.

- **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.

- **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
Mid Term	20
Final Exam	35
Portfolio 1	13
Portfolio 2	25
Collaborative Work	5
Participation in class	2
Total	100

Grading Scale

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

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 (https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures)** to view which states allow online (distance education) outside of California.

INCOMPLETES 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.

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.

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 **Academic Policies (http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278)** 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](https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=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 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 or all of the elements of their AP in a particular 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.

PLNU ATTENDANCE AND PARTICIPATION POLICY

For remote students

Students taking online courses are expected to attend each week of the course. Attendance is defined as participating in an academic activity within the online classroom which includes posting in a graded activity in the course. (Note: Logging into the course does not qualify as participation and will not be counted as meeting the attendance requirement.)

Students who do not attend at least once in any 3 consecutive days will be issued an attendance warning. Students who do not attend at least once in any 7 consecutive days will be dropped from the course retroactive to the last date of recorded attendance.

For non-remote students

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 (http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278)** 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**   **(https://www.pointloma.edu/offices/spiritual-development)**

week	Tuesday	Wednesday	Thursday
1 3/1-3/5	Introduction to the course & Non-Euclidean Geometry	Collaborative Assignment #1 Due	Introduction to Non-Euclidean Geometry Taxicab Geometry Chapter 1
2 3/8- 3/12		Collaborative Assignment #2 Due	Taxicab Geometry Chapter 2
3 3/15- 3/19		Collaborative Assignment #3 Due	Taxicab Geometry Chapters 3&4
4 3/22-3/26		Collaborative Assignment #4 Due	Taxicab Geometry Chapter 6
5 3/29-4/2	Collaborative Assignment # 5 Due on Tuesday!		Introduction to GeoGebra Venema: Section 1.2 Venema: Section 1.3
6 4/5-4/9	**First portfolio due (Taxicab Geometry Problems)**	Collaborative Assignment #6 Due	Venema: Section 1.4 Venema: Section 2.2
7 4/12-4/16		Collaborative Assignment #7 Due	Venema: Section 2.3 Venema: Section 2.4
8	**Mid-Term Exam**	Collaborative Assignment #8 Due	Venema: Section 2.5

4/19-4/23			Venema: Section 4.1
9 4/26-4/30		Collaborative Assignment #9 Due	Venema: Section 4.2 Venema: Section 4.3
10 5/3-5/9	Collaborative Assignment #10 Due on Tuesday!		Venema: Section 5.1 Venema: Section 5.2
11 5/10 – 5/14		Collaborative Assignment #11 Due	Venema: Section 5.3 Venema: Section 7.1
12 5/17 – 5/ 21		Collaborative Assignment #12 Due	Venema: Sections 7.2 & 7.3
13 5/24 – 5/28	**Second Portfolio Due (Euclidean Geometry Problem)**	Collaborative Assignment #13 Due	Venema: Section 8.1 Section 13.1 & 13.3
14 5/31-6/4		Collaborative Assignment #14 Due	Venema: Chapter 14
Finals week 6/7-6/11			6/10 **Final Exam 1:30- 4:00**