

MTH 4092 (2 units)

Special Topics in Mathematics

TR 8:30-9:25 am in RS 295

Instructor: Greg Crow, Ph.D. *Texts:*
Email: gcrow@pointloma.edu None
Phone: 619.849.2604
Office: RS252
Office Hours: Posted in Canvas

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 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.

Catalog Description

MTH 4092 (2 Units) Special Topics in Mathematics

Study of an area of mathematics not otherwise included in the curriculum. The needs and interests of students and faculty involved determine the topics.

Learning Outcomes

- Students will be able to apply their mathematical knowledge to solve problems.
- Students will be able to use technology to solve problems.
- Students will be able to speak about their work with precision, clarity and organization.
- Students will be able to write about their work with precision, clarity and organization.
- Students will collaborate effectively in teams.

Grade Components

Grade Components	Percent
Final Exam	25
First Draft of Portfolio	25
Portfolio	50
Total	100

Homework and Late Submission Penalties

The homework is a portfolio that demonstrates your understanding of the topics in the course. The first draft of the portfolio will be submitted on or before Thursday 24-Oct-2019. The completed portfolio will be submitted on or before Tuesday 10-Dec-2019. Late submission of a portfolio will be assessed a $2^{n-1} \times 10\%$ 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 9:00 am on the first weekday after the due date will incur a two day late penalty deduction of 20%.

Grading Scale

Grades are based on the number of points accumulated throughout the course with the following exception. A student must pass the Final Examination in order to pass the class. That is, a score of 60% must be achieved on the Final Examination, 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:

Grading Scale in percentages	A	B	C	D
+		(87.5, 90.0)	(77.5, 80.0)	(67.5, 70.0)
	[92.5, 100]	[82.5, 87.5]	[72.5, 77.5]	[62.5, 67.5]
-	[90.0, 92.5)	[80.0, 82.5)	[70.0, 72.5)	[60.0, 62.5)

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 the Undergraduate Academic Catalog [Class Attendance](#).

If you miss 10% of the class, you will receive a warning. If you miss 20% of the class, you will be automatically de-enrolled.

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

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 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.

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 Academic Honesty for definitions of kinds of academic dishonesty and for further policy information.

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 2 unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request.

Final Exam: 7:30-10:00 am on Tuesday December 19th, 2019

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. The Final Examination shall not be missed without prior consent or a well-documented emergency beyond your control. A score of zero will be assigned if the Final Examination is missed without prior consent or a well-documented emergency beyond your control. **The Final Exam is a Comprehensive Examination.**

	Sunday	Monday	Tuesday	Wed.	Thursday	Friday	Saturday
September	1	2 Labor Day	3 Student Transitions	4	5 Introduction & Paths in R^2	6	7
	8	9	10 Paths in R^2	11	12 Equivalence of Paths in R^2	13	14
	15	16 Dept. Chapel	17 Products of Paths in R^2	18	19 Loops in R^2	20	21
	22	23	24 Loops in R^2	25	26 Obstructions in R^2	27	28
	29	30	1 Obstructions in R^2	2	3 Groups	4	5
October	6	7	8 Groups	9	10 Free Groups	11	12
	13	14	15 Free Groups	16	17 Relations on Free Groups	18 Advising Chapel	19
	20	21	22 The Fundamental Group	23	24 Portfolio Draft Due	25 Fall Break	26
	27	28	29 The Fundamental Group Spiritual Emphasis Week	30	31 The Fundamental Group of S^1 Spiritual Emphasis Week	1	2
November	3	4	5 The Fundamental Group of S^1	6	7 The Universal Cover of S^1	8 Last Day to Drop	9
	10	11	12 The Universal Cover of S^1	13	14 Higher Dimensional Loop Spaces	15	16
	17	18	19 Higher Dimensional Loop Spaces	20	21 Higher Dimensional Loop Spaces	22	23
	24	25	26 $\Pi_n(X)$	27 Recess	28 Thanksgiving Day	29 Recess	30
December	1	2	3 $\Pi_n(X)$	4	5 $\Pi_n(X)$	6	7
	8	9	10 Portfolio Due	11	12 Review	13	14
	15	16	17 7:30 - 10 am Final Exam	18	19	20	21