



Mathematics, Information, and Computer Sciences – School of STEM

MTH 1064 – Calculus I

4 units

Fall 2024

Mondays, Wednesdays, and Fridays at 8:30 to 9:25 in Rohr Science, room 395

Thursdays at 3:30 to 4: 25 in Rohr Science, room 395

Rohr Science, room 365

Final Exam: Friday December 20th 7:30 to 10:00 am

Information	Specifics for the course
Instructor name and title:	Catherine Crockett, Professor of Mathematics
Phone:	619-849-2627
Email:	catherinecrockett@pointloma.edu
Office location and hours:	Rohr Science 222 or ZOOM Mondays, Wednesdays and Fridays 11:00 am – 12:00 pm Tuesdays and Thursdays 10:00 to 11:30 Tuesdays 3:00 to 4:00 Fridays 2:40 to 3:30 or 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.

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.

GENERAL EDUCATION LEARNING OUTCOMES

1. Students will be able to solve problems that are quantitative in nature.
2. Students will be able to formulate a mathematical model from a verbal description of a problem.
3. Students will be able to solve non-routine problems using logic and quantitative techniques.
4. Students will be able to construct solutions to problems using computational techniques

COURSE DESCRIPTION

MTH 1064- Calculus I

Calculus of the elementary functions of one variable. Limits, continuity, derivatives, methods of integration and applications.

Prerequisite: Mathematics 1033 (or equivalent). Corequisite: Mathematics 1064L

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.

PROGRAM AND COURSE LEARNING OUTCOMES

1. Students will be able to demonstrate facility with analytical concepts.
2. Students will be able to demonstrate facility with algebraic structures.
3. Students will be able to use technology to solve problems.
4. Students will be able to speak about their work with precision, clarity, and organization.
5. Students will collaborate effectively in teams.
6. Students will be able to identify, locate, evaluate, and effectively and responsible use and cite information for the task at hand.
7. Students will be able to gather relevant information, examine information and form a conclusion based on that information.
8. Students will be able to understand and create arguments supported by quantitative evidence, and they can clearly communicate those arguments in a variety of formats.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

1. Textbook: Calculus, 9th Edition by Stewart (ISBN: 9781337624183 for hardback, but e-Text of the same book is acceptable)
2. A non-graphing scientific calculator for use on exams and in the classroom (with at least trigonometric, exponential, and logarithmic keys)

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 15 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework.

ASSESSMENT AND GRADING

The grade components are written homework, labs, midterm exams, and the final examination.

Graded Components

- **Labs:** Attendance at each class is required. In these classes (Thursdays), we will work on homework, activities and quizzes. Some labs may be graded, and some you will get full credit just for attempting.

- **Homework:** The homework is designed to allow you to grasp the concepts of Calculus; it is not an end in itself. The homework problems will be taken from the Textbook and handwritten on paper. There may also be other activities that are completed as homework. Each homework set will be due at the beginning of class on Fridays. Please see the schedule below. Late homework will not be accepted without prior consent or a well-documented emergency beyond your control. Written homework that is submitted late without prior consent will be recorded with a score of zero. The lowest two homework scores will be dropped prior to computing the final course grade.

Comments on Homework:

- This is the minimum amount of homework that is required but you may need to do several odd numbered problems to make sure you get the answer in the textbook.
 - Please be sure that your homework is stapled together, and the problems are in order.
 - **Homework will be scored on a combination of completeness and correctness. All work necessary to complete a problem must be shown to earn credit.**
 - Start working on your homework early. These problems are difficult and meant to be done a little at a time over the course of a few days.
 - When doing homework, please note it is normal to not be able to do every problem correct on the first attempt. Do not be discouraged, instead seek help.
 - The two lowest homework scores will be dropped before calculating the overall grade for homework.
- **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 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.

Final Exam: Scheduled on Friday 20-Dec-2024 from 7:30 to 10:00 AM in the classroom. Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the [Class 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.

GRADING SCALE

A passing grade requires getting at least 60% in one of the two tests or on the final exam. Grades are based on the number of points accumulated throughout the course. Approximate minimal percentages required to obtain a given grade are:

Grading Scale in Percentages				
	A	B	C	D
+		(87.5, 90]	(77.5, 80]	(67.5, 70]
	(92.5, 100]	(82.5, 87.5]	(72.5, 77.5]	(62.5, 67.5]
-	(90, 92.5]	(80, 82.5]	(70, 72.5]	[60, 62.5]

GRADING DISTRIBUTION

Grade Distribution	
Three exams at 15% each	45%
Final Exam (Cumulative)	25%
Labs	10%
Homework	20%
Total	100%

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. Late work need not be accepted. Make-up tests will be given only by prior arrangement with the instructor for reasons of documented emergency.
- **Incomplete grade:** Incompletes will only be assigned in extremely unusual circumstances. You may request a grade of I (incomplete) only if you are having a passing grade and at least 70% of the course work is completed.

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 you have questions, a desire to meet with the chaplain or have prayer requests you can contact the [Office of Spiritual Life and Formation](#)

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.

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 RECORDING NOTIFICATION

In order to enhance the learning experience, please be advised that this course may be recorded by the professor for educational purposes, and access to these recordings will be limited to enrolled students and authorized personnel.

Note that all recordings are subject to copyright protection. Any unauthorized distribution or publication of these recordings without written approval from the University (refer to the Dean) is strictly prohibited.

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. For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

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 619-849-2486). 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. The EAC makes accommodations available to professors at the student's request.

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 special accommodations.

LANGUAGE OF BELONGING

Point Loma Nazarene University faculty are committed to helping create a safe and hospitable learning environment for all students. As Christian scholars we are keenly aware of the power of language and believe in treating others with dignity. As such, it is important that our language be equitable, inclusive, and prejudice free. Inclusive/Bias-free language is the standard outlined by all major academic style guides, including MLA, APA, and Chicago, and it is the expected norm in university-level work. Good writing and speaking do not use unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, gender, sex, or sexual orientation. Inclusive language also avoids using stereotypes or terminology that demeans persons or groups based on age, disability, class, ethnicity, gender, race, language, or national origin. Respectful use of language is particularly important when referring to those outside of the religious and lifestyle commitments of those in the PLNU community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of hospitality.

If you (or someone you know) have experienced a bias incident regarding language, you can find more information on reporting and resources at www.pointloma.edu/bias.

SEXUAL MISCONDUCT AND DISCRIMINATION

In support of a safe learning environment, if you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that accommodations and resources are available through the Title IX Office at pointloma.edu/Title-IX. Please be aware that under Title IX of the Education Amendments of 1972, faculty and staff are required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at counselingservices@pointloma.edu or find a list of campus pastors at pointloma.edu/title-ix.

If you (or someone you know) have experienced other forms of discrimination or bias, you can find more information on reporting and resources at www.pointloma.edu/bias

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 withdrawal date or, after that date, receive an "F" grade.

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.

DAILY SCHEDULE

Week	Monday	Wednesday	Thursday	Friday
1	9/2 Labor Day- no class	9/4 Introduction to class 1.1: Four ways to represent a function 1.2: Mathematical Models	9/5 Lab #1	9/6 1.2: Mathematical Models 1.3: New Functions
2	9/9 1.4: Tangent & Velocity 1.5: Limit of a function	9/11 1.5: Limit of a function 1.6: Limit Laws	9/12 Lab #2	9/13 1.7: Precise Definition of a Limit Due: Homework #1
3	9/16 1.8: Continuity	9/18 2.1: Derivatives & Rates of Change 2.2: Derivative as a function	9/19 Lab #3	9/20 2.3: Differentiation formulas Due: Homework #2
4	9/23 2.4: Derivatives of Trig functions	9/25 Review for Exam #1	9/26 Lab #4	9/27 Exam #1 Due: Homework #3
5	9/30 2.5: The Chain Rule	10/2 2.6: Implicit Differentiation	10/3 Lab #5	10/4 2.7: Rates of Change 2.8: More Rates of Change Due: Homework #4
6	10/7 2.9: Linear Approximations	10/9 3.1: Max & Min Values	10/10 Lab #6	10/11 3.2: The Mean Value Theorem 3.3: Shape of the graph Due: Homework #5
7	10/14 3.3: Shape of the graph 3.4: Limits at Infinity	10/16 3.4: Limits at Infinity 3.5: Summary of Curve Sketching	10/17 Lab #7	10/18 Review for Exam #2
8	10/21 Exam #2 Due: Homework #6	10/23 3.5: Summary of Curve Sketching 3.6: Graphing & Tech.	10/24 No class Fall Break	10/25 No class Fall Break
9	10/28 3.7: Optimization Problems	10/30 3.8: Newton's Method	10/31 Lab #8	11/1 3.9: Antiderivatives Due: Homework #7
10	11/4 4.1: Area & Distance Problems	11/6 4.2: The Definite Integral 4.3: Fundamental Theorem of Calculus	11/7 Lab #9	11/8 4.3: Fundamental Theorem of Calculus 4.4: Indefinite integrals Due: Homework #8
11	11/11 4.4: Indefinite integrals	11/13 4.5: The Substitution Rule	11/14 Lab #10	11/15 4.5: The Substitution Rule Due: Homework #9
12	11/18 5.1: Areas between two Curves	11/20 5.2: Volumes 5.3: Volumes by Cylindrical shells	11/21 Lab #11	11/22 5.4: Work 5.5: Average Value of a function

13	11/25 Exam #3 Due: Homework #10	11/27 No class Thanksgiving	11/28 No class Thanksgiving	11/29 No class Thanksgiving
14	12/2 6.1: Inverse Functions 6.2: Exponential Functions	12/4 6.2: Exponential Functions 6.3: Logarithmic Functions	12/5 Lab #12	12/6 6.4: Derivatives of Logarithmic Functions 6.5: Exponential Growth & Decay
15	12/9 6.6: Inverse trig functions 6.7: Hyperbolic functions	12/11 6.8: Indeterminate forms & L'Hospital Rule	12/12 Lab #13	12/13 Review for Final Exam Due: Homework #11
Finals	12/16	12/18	12/19	12/20 Final Exam 7:30 – 10:00 Due: Homework #12