Syllabus

	Department of Mathematical, Information and Computer Sciences MTH1073—Business Calculus 3 Units (MWF 2:55 to 3:50 LA 102)
	Spring 2024 | January 8 – May 3

Exam Dates:
     Exam #1: 2/23
     Exam #2: 4/8
	Professor: Catherine Crockett, PhD.

Final Exam: May 3, 1:30 to 4:00 in LA 102	**Phone:** 619.849.2723 **Email:** catherinecrockett@pointloma.edu
Prerequisite: MTH 1013 or equivalent More Course information posted in Canvas	**Office Hours**: WMF 11:00 am – 12:00 pm, MW 1:30 pm – 2:30 pm, Thu 10:00 am – 12:00 pm or by appointment **Office:** RS 222

COURSE DESCRIPTION

A calculus course intended for those studying business, economics, or other related business majors. This course covers differential and integral calculus of elementary functions with an emphasis on business applications. This is a brief calculus course and not appropriate for students majoring in science, computer science or mathematics.

FOUNDATIONAL EXPLORATIONS 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 LEARNING OUTCOMES

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

FOUNDATIONAL EXPLORATION LEARNING OUTCOMES

1. Students will bel 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.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

1. Graphing Calculator (TI-84+ recommended, CAS calculators are not allowed)
2. *Calculus and its Applications – Brief Version*, 12th Edition by Bittinger, Ellenbogen, Surgent & Kramer (ISBN: 9780135910115)
3. Access to MyLab Math, available through the online access key

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 3-unit class delivered over fifteen 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.)

ASSESSMENT AND GRADING

Graded Components

- **Online Homework:** This homework is completed in MyLab Math, available through the online access key. You will have multiple attempts to complete each problem. Each section covered in class will have associated problems assigned online. Late homework will not be accepted. You lowest two online homework scores will be dropped.

- **Written Homework**: Homework problems will be assigned regularly and posted on Canvas. A homework assignment is late if it is not submitted at the beginning of class on the due date. Please check regularly to ensure that you are keeping up with the homework. Late homework will not be accepted. Your lowest two homework scores will be dropped.

- **Weekly Classwork**: Attendance at each class is required. In these class meetings, we will work have lectures, work on activities and problems. Some classwork may be graded, and some you will get full credit just for attempting.

- **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 a well-documented emergency beyond your control. A score of zero will be assigned for an examination that is missed without a well-documented emergency beyond your control.

- **Late work will not be accepted**. Homework assignments that are submitted late will be recorded with a score of zero. During the course, you may find that you are unable to submit homework on time due to a personal situation (for example, a personal or family illness, accident, business trip, etc.). For this reason, if more than half of the homework assignments are submitted on time, then the lowest two homework scores will be dropped from the calculations of the homework grade. There are no exceptions to this policy so please use your dropped assignments wisely.

Grading Distribution	Percent
Two Examinations (at 20% Each)	40
Final Exam	30
Written Homework	15
Online Homework	10
Weekly Classwork	5
Total	100

FINAL EXAM:

Date and Time: Friday, May 3, 2024, from 1:30 to 4:00 in LA 102

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.

GRADING SCALE

Grades are based on the number of points accumulated throughout the course with the following exception. <u>A student must pass at</u>

least one of Examination 1, Examination 2, or the Final Examination in order to pass the class. That is, a score of 60% must be achieved on one of the Examinations, 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
+		[87.5-90.0)	[77.5-80.0)	[67.5-70.0)	
	[92.5-100.0]	[82.5-87.5)	[72.5-77.5)	[62.5-67.5)	[0-60)
−	[90.0-92.5)	[80.0-82.5)	[70.0-72.5)	[60.0-62.5)	

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 their physical location. Refer to the map on **State Authorization** 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 their 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** for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. 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 issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

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 and/or if they do not wish to utilize some or all of the elements of their AP in that course.

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.

SEXUAL MISCONDUCT AND DISCRIMINATION

Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. 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 help and support 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, it is 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

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   (https://www.pointloma.edu/offices/spiritual-development)**

week	Monday	Wednesday	Friday
1 1/8- 1/12	Course Introduction Review of Algebra R.1-2	Review of Algebra R. 3 - 5	Review of Algebra R. 6 -7
2 1/15- 1/19	No Class- MLK	1.1: Limits- Numerical and Graphical Approaches	1.2: Algebraic Limits and Continuity
3 1/22-1/26	1.3: Average rates of Change	1.4: Differentiation Using Limits of Difference Quotients	1.5: Leibniz Notation and Power & Sum-Difference Quotients
4 1/29-2/2	1.6: The Product and Quotients Rules	1.7: The Chain Rule	1.7: The Chain Rule
5 2/5- 2/9	1.8: Higher-Order Derivatives	2.1: Exponential & Logarithmic Functions	2.2: Derivatives of natural exponential functions
6 2/12- 2/16	2.3: Derivatives of natural logarithmic functions	2.4: Applications: Uninhibited and Limited Growth Models	2.5: Applications: Exponential Decay
7 2/19- 2/23	2.6: The Derivatives of a^x and $\log_a x$	Review for Exam #1	**Exam #1**
8 2/26- 3/1	3.1: Using First derivatives to find min/ max	3.2: Using second derivative to find min/ max	3.4: Optimization
SPRING BREAK 3/4-3/8			
9 3/11- 3/15	3.5: More Optimization	3.6: Marginals, Differentials, and Linearization	3.7: Elasticity of Demand
10 3/18-3/22	3.8: Implicit Differentiation	3.9: Related Rates	4.1: Antidifferentiation
11 3/25-3/29	4.2: Antiderivatives as Areas	4.3: Area and Definite Integrals	Easter Break
12 4/1- 4/5	Easter Break	4.3: Area and Definite Integrals	Review for Exam #2
13 4/8-4/12	**Exam #2**	4.4: Properties of definite integrals	4.5: U-Substitution
14 4/15- 4/19	4.6: Integration by Parts	4.6: Integration by Parts	Finance Topic
15 4/22-4/26	Finance Topic	Review for final	Review for final
Finals week 4/29- 5/3			**Final Exam 1:30 to 4:00**