POINT LOMA NAZARENE UNIVERSITY	**Department/School Name: Mathematical, Information and Computer Sciences** **Course Number and Name: MTH1053 Mathematical Analysis for Business and Economics** **Number of Units: 3** **Tuesday/Thursday 11:00 AM - 12:15 PM Fermanian 104** **Final Exam: Tuesday, March 6, 2025 10:30 AM - 1:00 PM**
Spring 2025	

Instructor: Prof Elizabeth Crow
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Office hours: Rohr Science 234 or ZOOM See Times in Canvas

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.

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.

COURSE DESCRIPTION

MTH 1053 - Mathematical Analysis for Business and Economics (3 Units)

This course focuses on learning and using basic mathematical tools that are fundamental to business applications. Applications of these tools include: supply and demand, optimization, cost-benefit analysis, equilibrium (systems of equations), interest, and loan amortization.

Prerequisite(s): MTH 1013 or equivalent.

COURSE AND PROGRAM LEARNING OUTCOMES

1. Students will develop an ability to use mathematics to analyze supply and demand.
2. Students will be able to use mathematics to solve a variety of interest problems.
3. Students will develop an ability to use mathematics to solve equilibrium, optimization, and cost-benefit problems

GENERAL EDUCATION LEARNING OUTCOMES

The GE Learning Outcome assessed in this class is: GELO 1e. Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature.
The Signature Assignment for assessing this GELO is: Questions on the Final Exam

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences, 13th Edition
Ernest F. Haeussler, Richard S. Paul, and Richard J. Wood

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

- **Homework**: You may work with other people on your homework, but each individual will be responsible for writing up the entire homework assignment and turning it in. The homework is due at the start of class on Thursday.
- **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. In that case, the make-up exam will take place at 8:30 AM on the Saturday before final exams (May 3, 2025). A score of zero will be assigned for an examination that is missed without prior consent or a well-documented emergency beyond your control.
- **Final Examination Policy.** Successful completion of this class requires taking the cumulative 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.
- **Late work will not be accepted** without prior consent or a well-documented emergency.
- 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
Two Examinations at 20% each	40
Final Exam	30
Homework	30
Total	100

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, or the Final Exam in order 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	

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.

ARTIFICIAL INTELLIGENCE (AI) POLICY

Use of Artificial Intelligence (AI) tools (e.g, ChatGPT, iA Writer, Marmot, Botowski) to generate content (text, video, audio, images) that will end up in any work submitted to be graded for this course is not permitted. Use of these tools will be treated as plagiarism. If you have any questions about using AI, please discuss this with the instructor.

PLNU ACADEMIC ACCOMODATIONS 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.

ADDITIONAL COURSE INFORMATION

Additional PLNU policies and practices that apply to this course can be found at the following link: https://docs.google.com/document/d/18i1pUoY0iCfB8w7JKxVvACQW309X-JRB/edit?usp=sharing&ouid=116164865489739533893&rtpof=true&sd=true

Quick Links to Resources
Netiquette Guidelines | Help & Technical Support | Technology & System Requirements | Canvas Student Guides

Monday	Tuesday	Wednesday	Thursday	Friday	Week
13-Jan	14-Jan Introduction 1.1 Applications of Equations	15-Jan	16-Jan 1.1 Applications of Equations 1.2 Linear Inequalities	17-Jan	1
20-Jan **MLK Day**	21-Jan 1.3 Applications of Inequalities 1.4 Absolute Values	22-Jan	23-Jan 1.5 Summation Notation Homework 1 Due	24-Jan	2
27-Jan	28-Jan 1.6 Sequences 2.1 Functions	29-Jan	30-Jan 2.2 Special Functions Homework 2 Due	31-Jan	3
3-Feb	4-Feb 2.3 Combinations of Functions 2.4 Inverse Functions	5-Feb	6-Feb 2.5 Graphing Homework 3 Due	7-Feb	4
10-Feb	11-Feb 2.8 Functions of Several Variables 3.1 Lines	12-Feb	13-Feb 3.2 Applications of Linear Functions Homework 4 Due	14-Feb	5
17-Feb	18-Feb 3.3 Quadratic Functions 3.4 Systems of Linear Functions	19-Feb	20-Feb Review for Exam 1 Homework 5 Due	21-Feb	6
24-Feb	25-Feb **Exam 1**	26-Feb	27-Feb 3.5 Nonlinear Systems Homework 6 Due	28-Feb	7
3-Mar	4-Mar 4.1 Exponential Functions 4.2 Logarithmic Functions	5-Mar	6-Mar 3.6 Applications of Systems of Equations Homework 7 Due	7-Mar	8
10-Mar **Spring Break**	11-Mar **Spring Break**	12-Mar **Spring Break**	13-Mar **Spring Break**	14-Mar **Spring Break**	
17-Mar	18-Mar 4.3 Properties of Logarithms 4.4 Logarithmic and Exponential Functions	19-Mar	20-Mar 5.1 Compound Interest Homework 8 Due	21-Mar	9
24-Mar	25-Mar 5.2 Present Value 5.3 Interest Compounded Continuously	26-Mar	27-Mar 5.4 Annuities Homework 9 Due	28-Mar	10
31-Mar 7.4 Review	1-Apr 5.5 Amortization of Loans 5.6 Perpetuities	2-Apr	3-Apr 6.1 Matrices 6.2 Matrix Addition & Scalar Multiplication Homework 10 Due	4-Apr	11
7-Apr	8-Apr 6.3 Matrix Multiplication 6.4 Solving Systems with Matrices	9-Apr	10-Apr Review for Exam 2 Homework 11 Due	11-Apr	12
14-Apr	15-Apr **Exam 2**	16-Apr	17-Apr **Easter Break**	18-Apr **Easter Break**	13
21-Apr **Easter Break**	22-Apr 6.5 Solving Systems with Matrices 7.1 Linear Inequalities in Two Variables	23-Apr	24-Apr 7.2 Linear Programming Homework 12 Due	25-Apr	14
28-Apr	29-Apr Final Review	30-Apr	1-May Final Review Homework 13 Due	2-May	15
5-May	6-May **10:30 AM - 1:00 PM FINAL** Homework 14 Due	7-May	8-May	9-May	16