	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 4:00- 5:15** **RS 295**
Spring 2022	

Instructor: Prof Aceneth Foster
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Office hours: Before or after class by appointment in RS228

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

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 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

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.
- **Notes and Videos**: Each section will have videos to watch and you should take notes. Your video notes & problems will be submitted weekly in Canvas. Your video notes & problems are due at 11:59 pm on Monday evening. Up to a maximum of one set will be accepted up to 3 days late provided that consent is received from the professor before it is due. Video notes & problems that are submitted late without prior consent will be recorded with a score of zero.
- **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
Two Examinations at 17.5% each	35
Final Exam	30
Video Notes and Problems	10
Homework	25
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	

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.

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 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.

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.

FINAL EXAM

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 th 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.

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

Week	Monday- notes due	Tuesday	Thursday
1 1/10-1/14		**No Class**	Introduction/ Review 1.1: Applications of Equations 1.2: Linear Inequalities
2 1/17-1/21	**Due:** Week 2: Video Notes & Problems	1.3: Applications of Inequalities 1.4: Absolute Values	1.5: Summation Notation **Due:** Homework 1: 1.1, 1.2
3 1/24-1/28	**Due:** Week 3: Video Notes & Problems	1.6: Sequences 2.1: Functions	2.2 Special Functions **Due:** Homework 2: 1.3, 1.4, 1.5
4 1/31-2/4	**Due:** Week 4: Video Notes & Problems	2.5 Graphing in Rectangle coordinates	2.3 Combinations of functions 2.4 Inverse Functions **Due:** Homework 3: 1.6, 2.1, 2.2
5 2/7-2/11	**Due:** Week 5: Video Notes & Problems	2.8 Functions of Several Variables	Review for Exam #1 **Due:** Homework 4: 2.3, 2.4, 2.5
6 2/14-2/18	Study for Exam #1	**Exam #1** **Due:** Homework 5: 2.8	3.1 Lines 3.2 Applications and Linear Functions
7 2/21-2/25	**Due:** Week 7: Video Notes & Problems	3.3 Quadratic Functions 3.4 Systems of Linear Functions	3.4 Systems of Linear Functions 3.5 Nonlinear Systems **Due:** Homework 6: 3.1, 3.2
8 2/28-3/4	**Due:** Week 8: Video Notes & Problems	3.6 Applications of Systems of Equations	4.1 Exponential Functions 4.2 Logarithmic Functions **Due:** Homework 7: 3.3, 3.4, 3.5
		Spring Break 3/7 to 3/11	
9 3/14-3/18	**Due:** Week 9: Video Notes & Problems	4.3 Properties of Logarithms 4.4 Logarithmic and Exponential Functions	5.1 Compound Interest **Due:** Homework 8: 3.6, 4.1, 4.2
10 3/21-3/25	**Due:** Week 10: Video Notes & Problems	5.2 Present Value 5.3 Interest Compounded Continuously	5.4 Annuities **Due:** Homework 9: 4.3, 4.4, 5.1
11 3/28-4/1	**Due:** Week 11: Video Notes & Problems	5.5 Amortization of Loans 5.6 Perpetuities	Review for Exam #2 **Due:** Homework 10: 5.2, 5.3, 5.4
12 4/4-4/8	Study for Exam #2	**Exam #2** **Due:** Homework 11: 5.5, 5.6	6.1 Matrices 6.2 Matrix Addition and Scalar Multiplication
13 4/11-4/15	**Due:** Week 13: Video Notes & Problems	6.3 Matrix Multiplication 6.4 Solving Systems by Reducing Matrices **Due:** Homework 12: 6.1, 6.2	**No Class- Easter Break**
14 4/18-4/22	**Due:** Week 14: Video Notes & Problems	6.5 Solving Systems by Reducing Matrices	7.1 Linear Inequalities in two Variables 7.2 Linear Programing **Due:** Homework 13: 6.3, 6.4
15 4/25-4/29	**Due:** Week 15: Video Notes & Problems	7.3 Multiple Optimum Solutions 7.4 The Simplex Method	Review for Final Exam **Due:** Homework 14: 6.5, 7.1, 7.2
16 Finals Week		**Final Exam: Tuesday 5/3, 4:30 to 7:00** **Due:** Homework 15: 7.3, 7.4	