Spring 2018- Math 153 Mathematical Analysis for Business and Economics (3.0 units)

MWF 1:30 to 2:25 in RS 13

Instructor: Dr. Catherine Crockett **email:** catherinecrockett@pointloma.edu

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Office hours: MWF 11-12, T TH 3-4, M 2-4, T 9-9:45 at Liberty Station, F 2:30-3:30 or by appointment

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

Other materials for the course: A scientific calculator is recommended.

Important Dates:	**Exam #1: Monday, February 12**
	Exam #2: Wednesday, March 28
	Final Exam: Monday, April 30 1:30 to 4:00

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 becomes an expression of faith. Being of Wesleyan heritage, we aspire 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:
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): MTH113 or equivalent

Learning Outcomes:
Students will develop an ability to use mathematics to analyze supply and demand.

Students will be able to use mathematics to solve a variety of interest problems.

Students will develop an ability to use mathematics to solve equilibrium, optimization and cost-benefit problems

Grading: Grades for the course will be based on the following (percentage of the course grade):

Homework (20%),

Quizzes (10%)

Exams (40%)

Final exam (30%)

Grading Scale: Approximate minimal percentages required to obtain a given grade are:

Grades in percentages

	A	B	C	D	F
+		[87.5,90)	[77.5, 80)	[67.5, 70)	[0,60)
	[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)	

*You will be able to view your grades in CANVAS.

Homework (20%): Homework will be assigned every class meeting. All homework assigned in a week will be due **at the start of class** on the next Wednesday. No late homework will be accepted except by prior arrangement or with a documented emergency. The object of the homework is to learn how to do the problems so I expect to see calculations on your homework using the terminology and methods of the class and not just an answer. Homework will be scored on a combination of completeness (with work shown) and correctness. A random selection (the same for all people) of the problems will be graded on any homework assignment. The two lowest homework scores will be dropped.

Quizzes (10%): Quizzes will be given in class throughout the semester. There are no make-up quizzes; however your lowest two quiz scores will be dropped.

Exams and Final Exam (40% and 30% of the grade): Exams and the Final Exam 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 by me 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.

Please note: I do not intend to accept excuses such as miscommunication with parents, benefactors, sport team sponsors and/or travel agents.

Please note:	**The Final Exam is COMPREHENSIVE.**
	April 30 (Monday) 1:30-4

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 Attendance Policy in the in the Undergraduate Academic Catalog.

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:

If you have a diagnosed disability, please contact PLNU's Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619-849-2486 or by e-mail at DRC@pointloma.edu. See Disability Resource Center for additional information. For more details see the PLNU catalog under Academic Accommodations. Students with learning disabilities who may need accommodations should discuss options with the instructor during the first two weeks of class.

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 the catalog for definitions of kinds of academic dishonesty and for further policy information.

Final Exam: Date and Time

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.

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

Side Note: Turn off any cell phone, pager or things that make noise while you are in class. Also, do not text or work on other classes while in class -to do so is disrespectful to your classmates and me. You may be asked to leave the class for such behavior, resulting in an absence.

General Advice:

You learn mathematics by doing it yourself. You should expect to spend approximately two hours outside of class for every one hour in class working on homework and going over concepts. 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.

Please note this schedule is tentative. Any changes will be announced.

Week	M	W	F
1 1/8- 1/12	(Tuesday) First Day of class Introduction Review: Chapter 0	1/10 1.1: Applications of Equations	1/12 1.2: Linear Inequalities
2 1/15- 1/19	1/15 MLK Day no class	1/17 1.3: Applications of Inequalities	1/19 1.4: Absolute Values 1.5: Summation Notation
3 1/22- 1/26	1/22 1.5 Summation Notation 1.6 Sequences	1/24 2.1: Functions	1/26 2.2: Special Functions 2.3: Combinations of functions
4 1/29- 2/2	1/29 2.3: Combinations of functions 2.4: Inverse Functions	1/31 2.5: Graphs in Rectangular coordinates	2/2 2.8 Functions of Several Variables
5 2/5- 2/9	2/5 3.1: Lines	2/7 3.2: Applications and Linear Functions	2/9 Review

6 2/12- 2/16	2/12 **Exam #1** **(chapters 1, 2, and 3.1-3.2)**	2/14 3.3: Quadratic Functions	2/16 3.4: Systems of Linear Functions
7 2/19- 2/23	2/19 3.5: Nonlinear systems	2/21 3.6: Applications of systems of equations	2/23 4.1: Exponential Functions
8 2/26- 3/2	2/26 4.2:Logarithmic functions	2/28 4.3: Properties of logarithms	3/2 4.4: Logarithmic and Exponential functions
Spring Break 3-5 to 3-9			
9 3/12- 3/16	3/12 5.1: Compound Interest	3/14 5.2: Present Value	3/16 5.3: Interest compounded continuously
10 3/19- 3/23	3/19 5.4: Annuities	3/21 5.5: Amortization of Loans	3/23 5.6: Perpetuities
11 3/26- 3/30	3/26 Review	3/28 **Exam #2** **(chapters 3.3-3.6, 4, 5)**	3/30 Easter Break No Classes
12 4/2- 4/6	4/2 Easter Break No classes	4/4 *6.1: Matrices	4/6 *6.2: Matrix Addition and Scalar Multiplication
13 4/9- 4/13	4/9 *6.3: Matrix multiplication	4/11 *6.3: Matrix multiplication	4/13 6.4 & 6.5:Solving Systems by Reducing matrices
14 4/16- 4/20	4/16 7.1: Linear Inequalities in two variables	4/18 7.2: Linear Programming	4/20 7.3 Multiple Optimum Solutions
15 4/23- 4/27	4/23 7.4 Simplex method	4/25 7.7 Minimization	4/27 **Review**
16 Finals Week	**4/30** **Final Exam: 1:30 to 4**	5/4	5/4