

Point Loma Nazarene University

Department of Mathematical, Information and Computer Science

MTH173-1	Business Calculus
Class Time	MWF 2:55 pm – 3:50 pm
Location	RLC 101
Instructor	Jesús Jiménez, Ph.D.
Office	RS 218
Phone	619-849-2634
Email	jjimenez@pointloma.edu
Office Hours	M 11:00 am – 12:00 pm and 1:00 pm – 2:30 pm W 11:00 am – 12:00 pm and 1:00 pm – 2:30 pm F 11:00 am – 12:00 pm
Textbook	Calculus and its applications, 11 th Edition
Author	Bittinger – Ellenbogen – Surgent
Exam 1	2/24/2016
Exam 2	4/13/2016

Final Exam	Monday, May 2 [1:30 pm - 4:00 PM]
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.

Grade Distribution	Two partial exams @ 250 points each	500	points
	Final Exam	300	points
	Homework	200	points
	Total	1000	points

Grading Scale		A	B	C	D	F
	+	>86%	>76%	>66%	<59%	
		>93%	>83%	>73%	>63%	
	-	>90%	>80%	>70%	≥59%	

Course Requirements	Prerequisites: MTH113 or equivalent.
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Homework	Homework will be assigned during the week and it will be collected the following Wednesday.
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Final Exam	The Final Exam is a COMPREHENSIVE examination.
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Resources	Library, Computer Lab, Math Tutoring Center
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TOPICS TO BE COVERED

- Differentiation of elementary functions.
- Integration of elementary functions.
- Marginal analysis.
- Optimization.
- Price, demand and revenue.
- Elasticity of demand.
- Consumer and producer surplus.
- Revenue, cost, and profit.

General Education:

This course is one of the components of the General Education Program at Point Loma Nazarene University, under the category of *Developing Cognitive Abilities*. By including this course in a common educational experience for undergraduates, the faculty supports the pursuit of personal awareness and skill development, focusing on the analytical, communicative, and quantitative skills necessary for successful living in society.

University Mission:

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.

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 in which a student is registered is considered essential to optimum academic achievement. Therefore, regular attendance and participation in each course are minimal requirements to be met. There are no allowed or excused absences except as approved in writing by the Provost for specific students participating in certain university-sanctioned activities. Excused absences still count toward the 10%-20% limits, but allow students to make up work, quizzes, or tests missed as a result of a university-sanctioned activity. Activities of a unique nature, such as labs or other activities identified clearly on the syllabus, cannot be made up except in rare instances when instructors have given advanced, written approval for doing so. Whenever the number of accumulated absences in a class, for any cause, exceeds ten (10) percent of the total number of class meetings, the faculty member should send an e-mail to the student and the Vice Provost for Academic Administration (VPAA) warning of attendance jeopardy. If more than twenty (20) percent of the total number of class meetings is reported as missed, the faculty member or VPAA may initiate the student's de-enrollment from the course without further advanced notice to the student. If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of W or WF consistent with university policy in the Grading section of the catalog. There are no refunds for courses where a de-enrollment was processed. For more details see the PLNU catalog: [http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Class Attendance](http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Class_Attendance)

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:

While all students are expected to meet the minimum academic standards for completion of their courses as established by the instructors, students with special needs may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the Disability Resource Center (DRC), located in the Bond Academic Center. Students can also reach the Disability Resource Center by phone at 619-849-2486 or by e-mail at DRC@pointloma.edu. Once the student files documentation, the Disability Resource Center contacts the student's instructors and provides written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. This policy assists the university in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities (ADA) Act of 1990, and ADA Amendments Act of 2008, all of which prohibit discrimination against students with special needs and guarantees all qualified students equal access to the benefits of PLNU programs and activities. For more details see the PLNU catalog: [http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Academic Accommodations](http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#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:

The Point Loma Nazarene University community holds the highest standards of honesty and integrity in all aspects of university life. Any violation of the university's commitment is a serious affront to the very nature of Point Loma's mission and purpose. Violations of academic honesty include cheating, plagiarism, falsification, aiding academic dishonesty, and malicious interference. The details of PLNU's meaning of each of these words can be found in the PLNU catalog at:

http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Academic_Honesty

A student remains responsible for the academic honesty of work submitted in PLNU courses and the consequences of academic dishonesty beyond receipt of the final grade in the class and beyond the awarding of the diploma. Ignorance of these catalog policies will not be considered a valid excuse or defense. Students may not withdraw from a course as a response to a consequence.

A student who is caught cheating on any item of work will receive a zero on that item and may receive an "F" for the semester. See the PLNU Catalog for a further explanation of the PLNU procedures for academic dishonesty

(http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278#Academic_Honesty).

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. 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 change 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 unit class delivered over 16 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request.

CLASS LEARNING OUTCOMES MTH173*GE Learning Outcomes:*

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

Course Learning Outcomes:

- Students will be able to find the derivatives of elementary functions.
- Students will be able to find the anti-derivatives (integrals) of elementary functions.
- Students will be able to apply differentiation and integration to solve business problems.

Daily Schedule

Monday		Wednesday		Friday	
1/11/2016	Review of Precalculus R.1, R.2	1/13/2016	Review of Precalculus R.3, R.4	1/15/2016	Review of Precalculus R.5, R.6
1/18/2016		1/20/2016	1.1	1/22/2016	1.2
Martin Luther King Jr (No Classes)		Limits: a numerical and graphical		Algebraic limits and continuity	
1/25/2016	1.3	1/27/2016	1.4	1/29/2016	1.5
Average rates of change		Differentiation using limits of		The power, sum-difference rules	
2/1/2016	1.6	2/3/2016	1.7	2/5/2016	1.7
The product and quotient rules		The chain rule		The chain rule	
2/8/2016	2.1	2/10/2016	2.2	2/12/2016	2.4
First derivative: maximum and minimum		Second derivative: maximum and		Derivatives: absolute maximum and	
2/15/2016	2.5	2/17/2016	2.6	2/19/2016	2.7
Maximum -minimum: business and		Marginals and differential		Elasticity of demand	
2/22/2016		2/24/2016		2/26/2016	2.8
Review for Exam 1		Exam 1		Implicit differentiation and related rates	
2/29/2016	3.1	3/2/2016	3.2	3/4/2016	3.3
Exponential functions		Logarithmic functions		Uninhibited and limited growth	
3/7/2016		3/9/2016		3/11/2016	
Spring Break		Spring Break		Spring Break	
3/14/2016	3.4	3/16/2016	3.5	3/18/2016	3.5
Decay		Derivatives of a^x and $\log_a x$		Annuities	
3/21/2016	3.6	3/23/2016	4.1	3/25/2016	
Amortization		Antidifferentiation		Easter Break	
3/28/2016		3/30/2016	4.2	4/1/2016	4.2
Easter Break		Antiderivatives as areas		Antiderivatives as areas	
4/4/2016	4.3	4/6/2016	4.4	4/8/2016	4.5
Area and definite integrals		Property of definite integrals		Integration by substitution	
4/11/2016		4/13/2016		4/15/2016	4.5
Review for Exam 2		Exam 2		Integration by substitution	
4/18/2016	4.5	4/20/2016	4.6	4/22/2016	4.6
Integration by substitution		Integration by parts		Integration by parts	
4/25/2016	5.1	4/27/2016	5.1, 5.2	4/29/2016	5.2
Consumer surplus and producer surplus		Consumer-producer surplus.		Integration growth and decay models	
5/2/2016		5/4/2016		5/6/2016	
Final Exam (1:30 pm - 4:00 pm)					