

MTH173 Business Calculus (3 units)**TTh 1:30-2:45 RLC106****Instructor:** Ryan Botts, Ph.D.**Office:** Gym parking lot, Trailer #1/Rohr Science 228 (After Jan. 17, 2019)**Office Hours:** TTh 8:30-11 W 10:00-12
Other hours by appointment**Phone:** 619.849.2968**Email:** rbotts@pointloma.edu**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.

Prerequisites: MTH113 or Equivalent**Required Materials****Online Text (Access Code Required)**

Calculus and its Applications 11th Edition by Bittinger/Ellenbogen/Surgent
PEARSON ISBN: 978-0-321-97939-1

Course Goals

Students should gain the ability to properly identify types of differential equations and apply a wide range of analytical methods for solving differential equations. Students should be able to apply the basic numerical methods for solving differential equations.

Learning Outcomes

- 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.

General Education Learning Outcomes

- Students will be able to solve problems that are quantitative in nature.

General Education Statement

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 cultures.

This course is one of the components of the General Education Program at Point Loma Nazarene University, in support of the general education learning outcome: *Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature.* The purpose of general education is to provide a common educational experience, to develop essential skills, and to provide a broad cultural background for personal and professional growth.

Examinations

There will be two midterms and a final exam. The final is comprehensive and will be held on **Thursday May 2, 2019 from 1:30-4 pm.**

Missed Exam Policy

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.

There is no make-up for the Final Exam. Tests 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.

Grading Policies

Grades will be weighted in the following manner:

Grade Distribution	
Two Tests at 23% each	46%
Final Exam	30%
Quizzes	8%
Online Homework	8%
Written Homework	8%
Total	100%

Approximate minimal percentages required to obtain a given grade are:

Grading Scale in percentages	A	B	C	D
+		(87.5, 90)	(77.5, 80)	(67.5, 70)
	[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)

- **Late work.** A written assignment or computer assignment is late if it is not received at the beginning of class on the due date. Late work will not be accepted unless prior arrangements or a documented emergency has been recorded. All late work (exams, homework or projects) will receive no credit.
- **Incomplete grade:** Incompletes will only be assigned in extremely unusual circumstances. You may request a grade of I (incomplete) only if you are having a passing grade an at least 70% of the course work is completed.

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 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.

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 [Academic Policies](#) 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

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

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 [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

Final Exam Thursday May 2, 2019 from 1:30-4 pm

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.

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

M	T	W	Th	F
1/7/19	1/8/19	1/9/19	1/10/19	1/11/19
	No Class		Sec. 1.1 and 1.2	
1/14/19	1/15/19	1/16/19	1/17/19	1/18/19
MLK Day	Sec. 1.3 WHW 1 Due		Sec. 1.4 & 1.5	OHW 1 Due
1/21/19	1/22/19	1/23/19	1/24/19	1/25/19
	Sec. 1.6 WHW 2 Due		Sec. 1.7	Quiz 1 Due OHW 2 Due
1/28/19	1/29/19	1/30/19	1/31/19	2/1/19
	Sec. 2.1 & 2.2 WHW 3 Due		Sec. 2.4 & 2.5	Quiz 2 Due OHW 3 Due
2/4/19	2/5/19	2/6/19	2/7/19	2/8/19
	Sec. 2.6 & 2.7 WHW 4 Due		Sec. 2.8	Quiz 3 Due OHW 4 Due
2/11/19	2/12/19	2/13/19	2/14/19	2/15/19
	Review WHW 5 Due		Exam I	Quiz 4 Due OHW 5 Due
2/18/19	2/19/19	2/20/19	2/21/19	2/22/19
	Sec. 3.1		Sec. 3.2	Quiz 5 Due
2/25/19	2/26/19	2/27/19	2/28/19	3/1/19

	Sec. 3.3 WHW 6 Due		Sec. 3.4	OHW 6 Due
3/4/19	3/5/19	3/6/19	3/7/19	3/8/19
Spring Break				
3/11/19	3/12/19	3/13/19	3/14/19	3/15/19
	Sec. 3.4 WHW 7 Due		Sec. 3.5	Quiz 6 Due OHW 7 Due
3/18/19	3/19/19	3/20/19	3/21/19	3/22/19
	Sec. 3.6 WHW 8 Due		Sec. 4.1	Quiz 7 Due OHW 8 Due
3/25/19	3/26/19	3/27/19	3/28/19	3/29/19
	Sec. 4.2 WHW 9 Due		Sec. 4.3	Quiz 8 Due OHW 9 Due
4/1/19	4/2/19	4/3/19	4/4/19	4/5/19
	Sec. 4.4 WHW 10 Due		Sec. 4.5	Quiz 9 Due OHW 10 Due
4/8/19	4/9/19	4/10/19	4/11/19	4/12/19
	Review WHW 11 Due		Exam II	Quiz 10 Due OHW 11 Due
4/15/19	4/16/19	4/17/19	4/18/19	4/19/19
	Sec. 4.6		Easter Recess	Quiz 11 Due
4/22/19	4/23/19	4/24/19	4/25/19	4/26/19
	Sec. 5.1 & 5.2 WHW 12 Due		Finance Activity	OHW 12 Due Quiz 11 Due
4/29/19	4/30/19	5/1/19	5/2/19	5/3/19
	Quiz 12 Due OHW 13 Due		FINAL 1:30-4:00 pm	

Homework Problem List

Homework	Sections	Problems
1	1.1	73, 81, 82
	1.2	73
2	1.3	28, 29, 30, 33, 44, 45

	1.4	35, 36
	1.5	94
3	1.6	35, 56, 60
	1.7	71, 72, 73, 75, 76
4	2.1	87, 88
	2.2	57, 59, 60
	2.4	97, 101, 102, 103, 104
	2.5	29, 32, 37, 42, 43
5	2.6	5, 17, 18, 25
	2.7	11, 12
	2.8	33, 34, 37
6	3.1	81, 82, 82, 85, 86
	3.2	96, 99
7	3.3	9, 12, 21, 24, 31
8	3.4	26, 27, 30, 31, 33
	3.5	37, 42, 43
9	3.6	23, 24, 27, 29, 35
	4.1	61, 62, 63, 65, 66
10	4.2	2, 3, 19, 20
	4.3	59, 60, 61, 63, 64
11	4.4	45, 48
	4.5	87, 88
12	4.6	39, 40
13*	5.1	15, 16
	5.2	22, 23, 27, 34