Business Calculus

Point Loma Nazarene University, Fall 2021

Instructor: Kyle Havens	**Course:** Math 1073	**Section:** 2	**Units:** 3
Days: Monday, Wed., Friday	**Time:** 1:30 pm to 2:25 pm	**Room:** BAC-155	
MLM: https://mlm.pearson.com	**Email:** kylehavens@pointloma.edu	**Office:** RS-276	

Required Materials:

1. Graphing Calculator (TI-84+ recommended, TI-83+ adequate, CAS calculators are not allowed)
2. MyLab Math Access Code – *Calculus and its Applications – Brief Version*, 12th Edition (ISBN: 9780135910115)

O. Physical Textbook is Optional – *Calculus and its Applications – Brief Version*, 12th Edition by Bittinger/Ellenbogen/Surgent/Kramer (ISBN: 9780135164884)

Prerequisite: Math 1013 (Intermediate Algebra) or equivalent. You are expected to retain algebra skills.

Welcome Message: I look forward to spending the semester learning calculus with you. You will be amazed at how easy some concepts are to understand, and equally amazed at how challenging some problems are to solve. Over the semester, you will experience a range of feelings, including: success and failure; challenge and boredom; accomplishment and frustration. Please know that your fellow classmates and I will be here to help you through it. Also, persistence and hard work mean a lot more in this class than "intelligence." Put in time and effort and you will succeed. Skip class and homework and you will struggle.

University Mission – Teach, Shape, 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.

Office Hours: Mon/Fri: 10am-12pm @ RS276, Wed: 11am-12pm @ RS276, Tues/Thurs: 2:30-4pm @ LS201

Foundational Exploration 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: 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.

Student Learning Outcomes:

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

Class Performance: Your final grade in my class will be calculated by the following system.

30%	Final Exam	Cumulative. You must get a "D" on the final exam to pass.
45%	Exam Average	The average score of your 3 in-class exams.
15%	Online Homework	Assigned online using MyLabMath for each section.
10%	Quizzes/Written HW/Projects	Assorted written quizzes, assignments and projects.

Letter Grade: The letter grade you receive will be based on your total score from the above system.

Above 92% : A	82-87%: B	70-77%: C
90-91%: A-	80-81%: B-	68-69%: C-
88-89%: B+	78-79%: C+	60-67%: D

The grade you receive at the end of the semester will be the grade you earned based on the above grading system. All requests for an opportunity to improve your grade due to personal circumstances will be denied. Borderline grades may be rounded up if the student has good attendance (no more than one unexcused absence).

Final Exam: The final exam is cumulative and will be held at the following time:

Wednesday, December 15th from 1:30pm to 4:00pm

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 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.

Online Homework: Homework problems will be assigned regularly and posted online using MyLabMath. It is your responsibility to keep up with the homework. Every section covered in class will have associated problems assigned online. You will always have approximately one week from the class date to finish the homework from that section. Online homework may be completed late (up until the respective exam) subject to a 10% penalty. I recommend you solve all online homework in a written journal so that you can ask about them during class time.

Written Homework/Quizzes/Projects: Written homework, quizzes, and projects will sometimes be assigned during class time. Late homework or projects will not be accepted without a well-documented emergency. Please be sure that any written homework is stapled together and the problems are in order. Homework will be scored on a combination of completeness and correctness. A random selection (the same for each student) of problems will be graded on any homework assignment. I encourage you to help one another with homework, but directly copying another student's homework assignment is considered plagiarism and will not be tolerated. Quizzes are designed to be low stress checks on your progress. If a quiz is missed, it can be turned in by the next class period for partial points.

Exams: There will be a total of three normal exams every three to four weeks of the semester. No notes/books are allowed on exams. Graphing calculators are allowed on the exam, but CAS calculators are not. Certain formulas may be provided on the exam and others will need to be memorized. No make-up exams are allowed without express consent. Contact me before missing exam if you have a critical emergency. If you do not inform me that you will be missing an exam beforehand, you will get a zero on that exam. Exams are weighted equally at 15% of your total grade. If you have good attendance throughout the semester (no more than one unexcused absence), I will adjust the weighted scale of the exams in your favor, 20% for the two highest exams and 5% for the lowest. Practice exams will be posted on Canvas in advance of the exam designed to help you identify questions that you need to study further.

Participation: Mathematics requires active participation. Participation means: asking questions, making conjectures and checking them, providing solutions to problems, sharing ideas with classmates. During class time we collectively will participate in the same way. I will act as the expert facilitator during class time, with a mixture of lecture, group problem solving, and integrated discussion.

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 for further information about 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.

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.

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.

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.

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.

Academic Accommodations: 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.

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.

Sources of Help:

1. Professor. If you have questions, email me, ask in class, or come to my office hours.
2. Other classmates. Form study groups and work together.
3. Tutoring. Available in Rohr Science or through the Tutoring Center. Their hours will be on Canvas.
4. Online resources. Posted on Canvas, or find them yourself via YouTube, Khan Academy, etc.
5. Practice exams. Look at them ahead of time and use them to gauge your understanding.

Course Schedule

Week of	*Monday*	*Wednesday*	*Friday*
8/30/2021	**Tuesday** - Course Introduction and Information	Algebra Review - Functions, Graphs, Lines, and Calculators	Algebra Review - Factoring, Quadratics, and Rationals
9/6/2021	*No Class* Labor Day	Chapter 1 - Section 1 Graphical and Numerical Limits	Chapter 1 - Section 2 Algebraic Limits and Continuity
9/13/2021	Chapter 1 - Section 1+2 More on Limits	Chapter 1 - Section 3 Average Rates of Change	Chapter 1 - Section 4 Definition of the Derivative
9/20/2021	Chapter 1 - Section 5 Rules of Differentiation	Chapter 1 - Section 6 Rules of Differentiation	Chapter 1 - Section 7 Rules of Differentiation
9/27/2021	Chapter 1 - Section 8 Higher Order Derivatives	Chapter 3 - Section 1 Using First Derivatives	Review for Exam Chapter 1
10/4/2021	***Exam #1***	Chapter 3 - Section 1+2 Derivative Tests	Chapter 3 - Section 2+4 D Tests, Optimization
10/11/2021	Chapter 3 - Section 5 Optimization	Chapter 2 - Section 1 Exponential and Log Functions	Chapter 2 - Section 2+3 Derivatives of Exps and Logs
10/18/2021	Chapter 2 - Section 4 Applications	Chapter 2 - Section 5+6 Marginals, Differentials, Linearization	*No Class* Fall Break
10/25/2021	Chapter 3 - Section 7+8 Elasticity, Implicit/Log Diff	Chapter 3 - Section 8+9 Implicit Diff, Related Rates	Review for Exam Chapters 2 and 3
11/1/2021	***Exam #2***	Chapter 4 - Section 1 Antidifferentiation	Chapter 4 - Section 2 Antiderivatives as Area
11/8/2021	Chapter 4 - Section 2+3 Integration	Chapter 4 - Section 3 Area and Definite Integrals	Chapter 4 - Section 4 Properties of Definite Integrals
11/15/2021	Chapter 4 - Section 5 Integration by Substitution	Chapter 4 - Section 5 Integration by Substitution	Review for Exam Chapter 4
11/22/2021	***Exam #3***	*No Class* Thanksgiving Break	
11/29/2021	Chapter 4 - Section 6 Integration by Parts	Chapter 4 - Section 6 Integration by Parts	Finance Topic Geometric Series Convergence
12/6/2021	Finance Topic Amortization Formula	Finance Topic Amortization Project	Review for Final Chapters 1-4, Finance
12/13/2021	*Finals Week*	***Final Exam (12/15)*** 1:30-4:00pm (Cumulative)	*Finals Week*