***COURSE***: MATH 1325 Calculus for Business and Social Sciences

***TEXTBOOK:*** *Mathematics with Applications, 10th edition* by Lial, Hungerford, and Holcomb.

***PREREQUISITE:***MATH 1313 or MATH 1324 with a grade of C or better, or passing the College Algebra exemption test, or ACCUPLACER College Level Mathematics part score 80 or better.

***INSTRUCTOR:***XXX, **E-Mail:** XXX, ***OFFICE:***MAGC XXX, ***TELEPHONE:***665-XXX   
***OFFICE HOURS:*** *XXX*

***TOPICS*:** The following topics from the textbook will be covered during the semester:

Chapter 11:

11.1. Introduction to Business Calculus. Limits.

11.2. One-sided limits and limits involving infinite.

11.3. Rates of change.

11.4. Tangent lines and derivatives.

11.5. Techniques for finding derivatives.

11.6. Derivatives of product and quotients.

11.7. Chain rule.

11.8. Derivatives of exponential and logarithmic functions.

11.9. Continuity and differentiability.

Chapter 12:

12.1. Derivatives and graphs.

12.2. The second derivatives.

12.3. Optimization application.

12.4. Curve sketching.

Chapter 13:

13.1. Antiderivatives.

13.2. Integration by substitution.

13.3. Area and define integral

13.4. The fundamental theorem of calculus.

13.5. Application of integrals.

13.6. Tables of integral (optional).

13.7. Differential equations.

Chapter 14:

14.1. Functions of several variables.

14.2. Partial derivatives.

14.3. Extrema of functions of several variables.

***EXAMINATIONS*:** There will be quizzes, three tests, a presentation/essay, and a comprehensive final examination. On all exams, you must show your work.

***QUIZZES***: Quizzes will be multiple choice, with no need to show details.

***HOMEWORK***: Homework will be assigned as written work or through an online system such as WeBWorK. For each computer-based assignment, there will be a fixed date-range to submit the work. After the closing date, you will not be able to submit your work.

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| *Samples of Assessment* | *Tentative Date* | *Percent Towards Grade* |
| WebWork HW | Every week | 10% |
| Quizzes | Alternate weeks | 10% |
| Test 1 | Third week | 15% |
| Test 2 | Sixth week | 15% |
| Test 3 | Ninth week | 15% |
| Final | As per final schedule | 20% |
| Presentation / Essay | Last week of class | 15% |

***CALCULATORS***: A calculator capable of performing basic scientific computations (arithmetic, trigonometric functions, logarithmic and exponential functions) is required for this course. Graphing calculators, calculators that can store formulas or strings, or calculators capable of performing symbolic calculations will not be allowed in quizzes/tests/exams. Electronic equipment, such as pocket organizers, handheld or laptop computers, electronic writing pads or pen-input devices, and cell phones will not be permitted during quizzes and exams. Graphing calculators will be permitted for solving homework problems. Please make sure that laptops, tablet devices, cell phones, and other electronic equipment are turned off and stored during class.

***SUGGESTIONS***: You are strongly encouraged to form a study group with two or three of your classmates. The group should have no more than 4 students. The group will serve to help each other in doing homework, studying for tests, and whenever possible, teaching each other. The idea is to help each other keep up with the class and be successful.

***GRADE DISTRIBUTION***: The course grade will be assigned according to the following scale: A(90-100%), B(80-89%), C(70-79%), D(60-69%), F(below 60%).

**The following are ways to get free help outside of class:**

1. Contact your instructor during their office hours or make appointment.
2. Get free Math tutoring from Learning Assistance Center (LAC) building in  Room 114 phone # 665-2532. (Edinburg Campus)
3. Get free Math tutoring from Math Lab in Math building (MAGC) in room  MAGC 1.106 (Edinburg Campus)
4. Visit the Math Tutoring Lab at SETB 1.408 (Brownsville Campus)
5. Visit the Math and Natural Sciences Learning Center at Cavalry Hall; Phone number: (956) 882-7058, (956) 882-8208 (Brownsville Campus)

**Business Calculus Student Learning Objectives:** After completing this course, students will be able to

1. Compute limits of algebraic functions graphically, numerically, and algebraically.
2. Compute the derivative of basic algebraic, exponential, and logarithmic functions using derivative rules and implicit differentiation.
3. Interpret the derivative graphically and as a rate of change in business applications.
4. Use limits and derivatives to construct, analyze, and interpret the graph of a function.
5. Use derivatives to analyze and solve applied optimization problems.
6. Compute indefinite and definite integrals of functions using anti-derivative rules and the Fundamental Theorem of Calculus.
7. Represent area as a definite integral and interpret the result in business applications.
8. Compute and interpret partial derivatives of functions of more than one variable.

**NEW UTRGV Core Objectives**

Students finishing a core curriculum course will be able to demonstrate the following objectives:

* ***CRITICAL THINKING (CT)*** is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion. This definition meets the THECB’s direction that critical thinking includes creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information; and is aligned with the UTRGV’s SLO for critical thinking skills.   
    
  Students will learn to approach symbolic and arithmetic problems form an abstract perspective using multiple representations of problems – geometric and algebraic. Furthermore a significant portion of the course will focus students on the application of mathematical concepts to aid in critical analysis of a variety of problems from business, economics, and finance.

Student learning objectives 1, 2, 5, 6, and 8 align with this core objective. They will be assessed through specific questions on tests and quizzes used in the course.

* ***COMMUNICATION SKILLS (COM)*** include the development, expression, and revision of ideas through the effective use of language (writing, reading, speaking, and listening) across a variety of forums. Communication involves learning to work in many genres and styles while using different technologies, can result in mixing texts, data, and/or images, and develops through diverse experiences across the curriculum. This definition meets the THECB’s direction that communication skills include effective written, oral, and visual communication; and is aligned with UTRGV’s SLO for communication skills.

A strong focus of this course is to develop in students the ability to discuss mathematical ideas in business, economics, and finance with fluency to both experts in mathematics and those with less experience. For many problems, the process of finding the solution is at least as important as the solution itself, making communication a natural skill developed by the course.

Student assessments (both summative and formative) used for student learning objectives 1, 3, 4, 5, and 7 will address the development of students’ communications skills in the course. Students will give a presentation, in groups, where they analyze a business problem using tools developed in the course. This will be used in the assessment of students' communication skills. Alternatively, up to instructor's decision, in lieu of presentations, students may write a paper analyzing a business problem, communicating how techniques from the course are used to solve the problem.

* ***EMPIRICAL AND QUANTITATIVE SKILLS (EQS),*** which involve numeracy or quantitative reasoning, include competency in working with numerical data and mathematical reasoning. Individuals with strong mathematical skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They interpret data and results and can create conjectures and arguments supported by quantitative evidence and/or mathematical reasoning, which they can clearly communicate in a variety of formats (using words, tables, graphs, and/or equations as appropriate). This definition meets the THECB’s direction that empirical and quantitative skills include applications of scientific and mathematical concepts; and is aligned with UTRGV’s SLO for empirical and quantitative skills.  
    
  The course strongly centers on the empirical and quantitative skills objective, which permeates every topic included in the course and course objectives. These will be assessed through specific questions on homework, quizzes, and exams in this course.

Student learning objectives 1, 2, 5, 6, and 8 align with this core objective. They will be assessed through specific questions on tests and quizzes used in the course.

**UTRGV Policy Statements**

**Students with Disabilities**

If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. **Brownsville Campus**: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at accessibility@utrgv.edu. **Edinburg Campus:** Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at accessibility@utrgv.edu.

**Mandatory Course Evaluation Period**

Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Online evaluations will be available Nov. 18 – Dec. 9, 2015. Students who complete their evaluations will have priority access to their grades.

**Attendance**

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

**Scholastic Integrity**

As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

**Sexual Harassment, Discrimination, and Violence**

In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

**Course Drops**

According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

**Electronic Communication Policy**

The university policy requires all electronic communication between the University and students be conducted through the official University supplied systems; namely UTRGV account for email or Blackboard for course specific correspondence. Therefore, please use your UTRGV assigned e-mail or Blackboard account for all future correspondence with UTRGV faculty and staff.