MATH-1325 BUSINESS CALCULUS
Department of Mathematics and Statistics
Fall 2019

A. COURSE INFORMATION

Course number/section:          MATH-1325-001 / P01
Class meeting time:              MWF 9:00 – 9:50 PM
Class location:                  OCNR 131
Course Website:                  www.bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor:                      Douglas Johnson
Office location:                CI-367
Office hours:                   MWF 10:00-10:45 AM, 12:00-12:45, 2-2:30
Telephone:                      (361) 825-2844
E-mail:                         douglas.johnson@tamucc.edu
Appointments:                   Via email

C. COURSE DESCRIPTION

Catalog Course Description
Students will develop and combine the concepts in and relationships between Mathematics and Business from
the fundamentals of calculus and optimization in all Business fields. Students are expected to learn the
materials algebraically with technology. Students will combine the concepts of limits, continuation, differentiation and integration techniques to solve problems in business, economics, and social
sciences.

Extended Course Description
This class is intended to develop the fundamentals of calculus and optimization using technology. The topics
to discuss include Graphing Functions, Trend Lines, Demand, Revenue, Cost and Profit, Differentiation (Rate
of Change) and its applications, Using Solver, Integration (Area under the curve) and its applications, Normal
Distributions, Simulating Normal Random Variables, Hospital Administration.

D. PREREQUISITES AND COREQUISITES

Prerequisites
Math 1324 Business Mathematics or placement into Math 1325.

Corequisites
None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Textbook
A hard copy of the textbook (*College Mathematics for Business, Economics, Life Sciences, and Social

**Supplies**
A calculator is required for every quiz and examination. A TI-83/84 calculator or similar is recommended but not required (it may make this class more manageable). **NO TI-INSPIRE will be allowed for Exams.**

**F. STUDENT LEARNING OUTCOMES AND ASSESSMENT**
Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:
1. Apply calculus to solve business, economics, and social sciences problems.
2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
3. Solve application problems involving implicit differentiation and related rates.
4. Solve optimization problems with emphasis on business and social sciences applications.
5. Determine appropriate technique(s) of integration.
6. Integrate functions using the method of integration by parts or substitution, as appropriate.
7. Solve business, economics, and social sciences applications problems using integration techniques.

**G. INSTRUCTIONAL METHODS AND ACTIVITIES**
- Instructional presentation of new material and concepts,
- Class discussion and problem solving analysis using critical thinking techniques,
- Individual written assignments to enhance understanding of new concepts,
- Discovery method techniques supported by a graphing utility to view the effects of shifting and translation concepts on the functions,

**H. MAJOR COURSE REQUIREMENTS AND GRADING**
Final course standing will be based upon several Homework & Quizzes, and Exams

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Semester 3 Exams (lowest test grade will be dropped)</td>
<td>50</td>
</tr>
<tr>
<td>Quizzes &amp; Participation</td>
<td>25</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25</td>
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Grades will be assigned according to the following scale.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90%-100%</td>
</tr>
<tr>
<td>B</td>
<td>80%-89.99%</td>
</tr>
<tr>
<td>C</td>
<td>70%-79.99%</td>
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<tr>
<td>D</td>
<td>60%-69.99%</td>
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<tr>
<td>F</td>
<td>below 60%</td>
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**I. COURSE CONTENT / TENTATIVE SCHEDULE**

<table>
<thead>
<tr>
<th>DATE (BY WEEK)</th>
<th>TOPIC</th>
<th>CHAPTER(S)</th>
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2
| 1 | Syllabus discussion  
10.1 Introduction to Limits  
10.2 Infinite Limits / Limits at Infinity | Chapter 10 |
|---|---|
| 2 | 10.3 Continuity  
10.4 The Derivative | Chapter 10 |
| 3 | 10.5 Basic Differentiation Properties  
10.6 Differentials  
10.7 Marginal Analysis in Business & Economics | Chapter 10 |
| 4 | 10.7 Marginal Analysis in Business & Economics  
11.2 Derivatives of Exponential and Logarithmic Functions | Review  
Chapter 11 |
| **EXAM 1** | --- | --- |
| 5 | 11.3 Derivatives of Products and Quotients  
11.4 The Chain Rule | Chapter 11 |
| 6 | 11.5 Implicit Differentiation  
11.6 Related Rates | Chapter 11 & Review  
Review  
Chapter 12 |
| 7 | 12.1 First Derivative and Graphs  
12.2 Second Derivative and Graphs  
12.3 L'Hopital’s Rule | --- |
| 8 | 12.5 Absolute Maxima and Minima  
12.6 Optimization | Chapter 12 |
| 9 | 12.6 Optimization  
13.1 Antiderivatives and Indefinite Integrals | Review  
Chapter 13  
**EXAM 2** |
| 10 | 13.2 Integration by Substitution  
13.3 Differential Equations; Growth and Decay | Chapter 13 |
| 11 | 13.3 Differential Equations; Growth and Decay  
13.4 The Definite Integral | Chapter 13 |
| 12 | 13.5 The Fundamental Theorem of Calculus  
14.1 Area Between Curves | Chapter 14 |
| 13 | 14.2 Applications in Business and Economics | Chapter 14 |
| **EXAM 3** | Review | No new material  
No new material  
**TBA** |
| Final Exam | **TBA** | --- |

### J. COURSE POLICIES

#### Attendance/Tardiness

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Attendance will be taken each day. It is imperative to attend every day to get the most out of your class. Please save absences for emergencies. Talking during class time and tardiness are often disruptive to the whole class and are not appreciated. If you are delayed and arrive late please do so quietly. Excessive tardiness, disruptive talking, disruptive behavior or performing activities not related to the class will be counted as absences. The instructor is NOT responsible for informing absent students what was covered in previous classes, homework or any other announcements.

Late Work and Make-up Exams
NO MAKEUPS WILL BE GIVEN FOR HOMEWORK OR QUIZZES.

No Make-up for final test

Missed Exam
No make-ups will be given without written evidence of an official University excused absence. For an absence to be considered excused, the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident or emergency) the student must provide notification by the end of the second working day after the absence. In the case of illness or injury, students are required to obtain a confirmation note from a health care professional affirming date and time of a medical office visit regarding the illness or injury.

Cell Phone Use
Cell phone using is prohibited in any circumstances. Students using their cell phones in class will be asked to leave the class and will be counted as absent for that day.

Laptop Use
Laptops, or any form of a new technology device is NOT allowed in the classroom during lecture and exam unless explicitly stated otherwise.

Semester Exams and Final Exam
• Three semester tests will be administered during class times. The dates will be announced in class. These dates may be changed with due notice announced during class time. Bring your own calculators and it cannot be shared. Cell phones cannot be used as calculators.
• The final exam will be a comprehensive examination over all materials covered during the semester. Absolutely no early final examination, so make travel arrangements accordingly. Without taking final exam, it will be an “F” for the semester grade regardless.

Participation
Students are encouraged to participate in class discussions and problem solving skills.

K. COLLEGE AND UNIVERSITY POLICIES
• Academic Integrity (University)
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment
or test will result in a failing grade.

• Classroom/Professional Behavior
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• Statement of Civility
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• Deadline for Dropping a Course with a Grade of W (University)
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

• Grade Appeals (College of Science and Engineering)
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

• Disability Services
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.
If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. **OTHER INFORMATION**

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

- **GENERAL DISCLAIMER**
  I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.