MATH 1325 STEM
Calculus for Business and Social Sciences

Western Texas College

I. Basic Course Information
   A. MATH 1325 Course Description: This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for MATH 2313 or 2413, Calculus I.
   B. Any required prerequisites: A grade of C or higher in MATH 1314 or MATH 1324.
   C. Advancement Via Individual Determination (AVID) learning strategies will be implemented periodically throughout the course.
   D. This course has been designed to prepare students whose chosen field of study requires a STEM mathematical pathway.
   E. Project Base Learning (PBL) is an active learning method in which students gain knowledge and skill by investigating and responding to a tangible, engaging and complex question, problem or challenge.
   F. Online course content is administered through the college's learning management system (LMS), Moodle, also called eCampus. A link to Moodle can be found on mywtc.edu or the college's home page, www.wtc.edu (the big M with a graduation cap).

II. Student Learning Outcomes
   A. Apply calculus to solve business, economics, and social sciences problems.
   B. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
   C. Solve application problems involving implicit differentiation and related rates.
   D. Solve optimization problems with emphasis on business and social sciences applications.
   E. Determine appropriate technique(s) of integration.
   F. Integrate functions using the method of integration by parts or substitution, as appropriate.
   G. Solve business, economics, and social sciences applications problems using integration techniques.

III. Course Requirements
   A. Major Requirements—All major requirements must be proctored.
      1. In-Class Participation
      2. Unit Exams
      3. Midterm Exam
      4. Final Exam
   B. Minor Requirements
      1. Binder Checks

2. Homework
3. Quizzes
4. Projects

IV. Testing Requirements
   A. Students are NOT allowed to use their book or notes of any kind while completing major requirements.

V. Information on Books and Other Course Materials
   A. Required Book: College Mathematics, 13th edition by Barnett, Ziegler and Byleen. Book ISBN: 978-0-321-94738-3
   B. Required Access Code: Online Students must purchase a MyMathLab Access Code. This code can be purchased stand alone or bundled with the textbook.
      1. Book bundled with MyMathLab ISBN: 978-0-321-94759-8
   C. Calculators: Students must have a calculator that provides them with the ln (natural log) function key. A TI-84 or higher is strongly recommended. The TI-89, TI-Inspire with CAS or any other calculator with CAS capability are not permitted.

VI. Other Policies, Procedures and important dates: Please refer to the WTC Course Catalog for the following:
   A. Campus Calendar
   B. Final exam schedule
   C. How to drop a class
   D. Withdrawal information
   E. Student Conduct
   F. Academic Integrity
   G. Class Attendance
   H. Students with disabilities

VII. Planned Course of Study

Chapters and Sections to be covered throughout the semester	
Chapter 10—Limits and the Derivative	10.1 Introduction to Limits 10.2 Infinite Limits and Limits at Infinity 10.3 Continuity 10.4 The Derivative 10.5 Basic Differentiation Properties 10.6 Differentials 10.7 Marginal Analysis in Business and Economics
Chapter 11—Additional Derivative Topics	11.1 The Constant *e* and Continuous Compound Interest 11.2 Derivatives of Exponential and Logarithmic Functions 11.3 Derivatives of Products and Quotients 11.4 The Chain Rule 11.5 Implicit Differentiation 11.6 Related Rates 11.7 Elasticity of Demand

Chapter 12—Graphing and Optimization	12.1 First Derivative and Graphs 12.2 Second Derivative and Graphs 12.3 L'Hopitals Rule 12.5 Absolute Maxima and Minima 12.6 Optimization
Chapter 13—Integration	13.1 Antiderivatives and Indefinite Integrals 13.2 Integration by Substitution 13.5 The Fundamental Theorem of Calculus
Chapter 14—Additional Integration Topics	14.1 Area Between Curves 14.2 Applications of Business and Economics 14.3 Integration by Parts

Disclaimer: Schedule and content is subject to change at the instructor's discretion.

Last Modified: August 23, 2019