

East Tennessee State University

MATH 1840: ANALYTICAL GEOMETRY/DIFFERENTIAL CALCULUS

Textbook: *Technical Calculus with Analytic Geometry* 4th edition, by Peter Kuhfittig published by Thomson Brooks/Cole, 2006.

Introduction to Analytic Geometry

- 1.1 The Cartesian Coordinate System
- 1.2 The Slope
- 1.3 The Straight Line
- 1.4 Curve Stretching
- 1.5 Discussion of Curves with Graphing Utilities
- 1.6 The Conics
- 1.7 The Circle
- 1.8 The Parabola
- 1.9 The Ellipse
- 1.10 The Hyperbola
- 1.11 Translation of Axes: Standard Equations of the Conics

Introduction to Calculus: The Derivative

- 2.1 Functions and Intervals
- 2.2 Limits
- 2.3 The Derivative
- 2.4 The Derivative by the Four-Step Process
- 2.5 Derivatives of Polynomials
- 2.6 Instantaneous Rates of Change
- 2.7 Differentiation Formulas
- 2.8 Implicit Differentiations
- 2.9 Higher Derivatives

Applications of the Derivative

- 3.1 The First-Derivative Test
- 3.2 The Second –Derivative Test
- 3.3 Exploring with Graphing Utilities
- 3.4 Applications of Minima and Maxima
- 3.5 Related Rates
- 3.6 Differentials

Derivatives of Transcendental Functions

- 6.1 Review of Trigonometry
- 6.2 Derivatives of Sin and Cosine Functions
- 6.3 Other Trigonometric Functions

- 6.4 Inverse Trigonometric Functions
- 6.5 Derivatives of Inverse Trigonometric Functions
- 6.6 Exponential and Logarithmic Functions
- 6.7 Derivative of Logarithmic Functions
- 6.8 Derivative of the Exponential Function
- 6.9 L'Hospital's Rule
- 6.10 Applications

ATTENDANCE: Because your attendance is extremely important to your success in this class, it will be checked during each class meeting. You need to be here for each class if at all possible.

Departmental Attendance Requirements (Approved February 28, 1994): The Department of Mathematics strongly advises students to attend all mathematics classes when physically able. Because there is a positive correlation between attendance and student success in mathematics, the following guidelines will be used in all mathematics courses. Regardless of the reasons for the absences, should a student exceed the following limits, the instructor has the authority to assign a grade of F or W:

- 7 absences for classes scheduled for MWF
- 5 absences for classes scheduled for TR

Leaving class early is an unnecessary distraction to other students. Please avoid leaving early.

CALCULATORS/CELL PHONES: Calculators usage may be limited on certain exams in this class. All that said and done a graphing calculator will make life easier on you in this class. I will be using the TI-84 and TI-89. **You will not be allowed to share calculators on exams. Cell phone calculators will not be allowed when taking tests.** If you bring a cell phone to class, please adjust it so that it will not ring or beep during class.

HOMEWORK: Homework will be assigned at each class meeting and be collected. There will be a time at the beginning of each class for homework questions. Doing your homework is **extremely** important in order for you to master the skills required for this course. The more homework you do the better your grade will be.

EXAMS: There will be four chapter exams. The dates for the exams will be announced at least one week before they are offered. A comprehensive final will be given which will count as one exam grade. Each exam (including the final) will count as 20% of your grade.

ATTENDANCE: Because your attendance is extremely important to your success in this class, it will be checked during each class meeting. You need to be here for each class if at all possible.

93 – 100 A	90 – 92 A-	87 – 89 B+	83 – 86 B	80 – 82 B-	77 – 79 C+
73 – 76 C	70 – 72 C-	67 – 69 D+	60 – 66 D	Below 60 F	