

math270 Syllabus

Math 270: Calculus I

Text: *Calculus: Early Transcendentals, 3rd Edition*, by Briggs, Cochran, Gillett and Schulz, 2019.

Prerequisites: Minimum ACT math score of 28 or SAT math score of 630, math 109 and math 110 with a grade of C or better, math 143 with a grade of C or better, or placement by the Advance Credit Exam.

A TI-83, TI-83 Plus, TI-84, TI-84 Plus, or TI NSpire (no CAS) Graphics Calculator is required.

Objectives, Outcomes, and Competencies

By the end of the course, students should be able to:

1. Use mathematical methods and models to solve quantitative problems and communicate solutions effectively.
2. Analyze and critically evaluate numerical and graphical data to draw reasonable and valid conclusions about real-world solutions.

Sections and Topics

- Section 2.1: The Idea of Limits
- Section 2.2: Definitions of Limits
- Section 2.3: Techniques for Computing Limits
- Section 2.4: Infinite Limits
- Section 2.5: Limits at Infinity
- Section 2.6: Continuity
- Section 3.1: Introducing the Derivative
- Section 3.2: The Derivative as a Function
- Section 3.3: Rules of Differentiation
- Section 3.4: The Product and Quotient Rules
- Section 3.5: Derivatives of Trigonometric Functions
- Section 3.6: Derivatives as Rates of Change
- Section 3.7: The Chain Rule
- Section 3.8: Implicit Differentiation
- Section 3.9: Derivatives of Logarithmic and Exponential Functions
- Section 3.10: Derivatives of Inverse Trigonometric Functions
- Section 3.11: Related Rates
- Section 4.1: Maxima and Minima
- Section 4.2: Mean Value Theorem
- Section 4.3: What Derivatives Tell Us
- Section 4.4: Graphing Functions
- Section 4.5: Optimization Problems

- Section 4.6: Linear Approximation and Differentials
- Section 4.7: L'Hopital's Rule
- Section 4.9: Antiderivatives
- Section 5.1: Approximating Areas under Curves
- Section 5.2: Definite Integrals
- Section 5.3: Fundamental Theorem of Calculus
- Section 5.4: Working with Integrals
- Section 5.5: Substitution Rule
- Section 6.1: Velocity and Net Change

Last updated 15 December 2022.