

OFFICIAL SYLLABUS MATH 150 - CALCULUS I

(Adopted - Fall 2010; Committee: Z. Agustin, G. Pelekanos, S. Staples)
(Updated Fall 2021 to reflect ninth edition of textbook.)

Textbook: Calculus, Early Transcendentals, Ninth Edition, by J. Stewart, D. Clegg, & S. Watson, with Webassign

Prerequisites: Math 125 with a grade of C or better, or satisfactory placement test score

Ch. 2. Limits and Derivatives

- 2.1 The Tangent and Velocity Problems
- 2.2 The Limit of a Function
- 2.3 Calculating Limits Using the Limit Laws
- 2.4 The Precise Definition of a Limit
- 2.5 Continuity
- 2.6 Limits at Infinity; Horizontal Asymptotes
- 2.7 Derivatives and Rates of Change
- 2.8 The Derivative as a Function

Ch. 3. Differentiation Rules

- 3.1 Derivatives of Polynomials and Exponential Functions
- 3.2 The Product and Quotient Rules
- 3.3 Derivatives of Trigonometric Functions
- 3.4 The Chain Rule
- 3.5 Implicit Differentiation
- 3.6 Derivatives of Logarithmic and Inverse Trigonometric Functions
- 3.7 Rates of Change in the Natural and Social Sciences
- 3.8 Exponential Growth and Decay
- 3.9 Related Rates
- 3.10 Linear Approximations and Differentials
- 3.11 Hyperbolic Functions

Ch. 4. Applications of Differentiation

- 4.1 Maximum and Minimum Values
- 4.2 The Mean Value Theorem
- 4.3 What Derivatives Tell Us about the Shape of a Graph
- 4.4 Indeterminate Forms and L'Hospital's Rule
- 4.5 Summary of Curve Sketching
- 4.7 Optimization Problems
- 4.9 Antiderivatives

Ch. 5 Integrals

- 5.1 The Area and Distance Problems
- 5.2 The Definite Integral
- 5.3 The Fundamental Theorem of Calculus
- 5.4 Indefinite Integrals and the Net Change Theorem
- 5.5 The Substitution Rule

Any instructor should cover all of the material specified; additional sections are optional.