

## Tentative Outline

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### Chapter 1: Functions and Models (review)

- 1.4: Exponential Functions
- 1.5: Inverse Functions and Logarithms

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### Chapter 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

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### Chapter 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
- 3.8: Exponential Growth and Decay
- 3.9: Related Rates
- 3.10: Linear Approximations and Differentials
- 3.11: Hyperbolic Functions

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### Chapter 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
- 4.8: Newton's Method
- 4.9: Antiderivatives

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### Chapter 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
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