

Math 255A Course Topics and Tentative Timetable

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Textbook: Greenwell, Ritchey, Lial; Calculus with Applications for the Life Sciences, Addison-Wesley, 2003

Chapter 1 Functions (Review)(1 hour)

- 1.1 Lines and Linear Functions
- 1.2 omit
- 1.3 Properties of Functions
- 1.4 Quadratic Functions; Translation and Reflection
- 1.5 Polynomial and Rational Functions

Chapter 2 Exponential, Logarithmic, and Trigonometric Functions (Review)...(2-3 hours)

- 2.1 Exponential Functions
- 2.2 Logarithmic Functions
- 2.3 Applications: Growth and Decay
- 2.4 Trigonometric Functions, Summary of Important Functions and Applications

Chapter 3 The Derivative.....(6 hours)

- 3.1 Limits
- 3.2 Continuity
- 3.3 Rates of Change
- 3.4 Definition of the Derivative
- 3.5 Graphical Differentiation

Chapter 4 Calculating the Derivative.....(9 hours)

- 4.1 Techniques for Finding Derivatives
- 4.2 Derivatives of Products and Quotients
- 4.3 The Chain Rule
- 4.4 Derivatives of Exponential Functions
- 4.5 Derivatives of Logarithmic Functions
- 4.6 Derivatives of Trigonometric Functions

Chapter 5 Graphs and the Derivative.....(6 hours)

- 5.1 Increasing and Decreasing Functions
- 5.2 Relative Extrema
- 5.3 Higher Derivatives, Concavity, and the Second Derivative Test
- 5.4 Curve Sketching

Chapter 6 Applications of the Derivative.....(8 hours)

- 6.1 Absolute Extrema
- 6.2 Applications of Extrema
- 6.3 Implicit Differentiation
- 6.4 Related Rates
- 6.5 Differentials: Linear Approximation and Application

Chapter 7 Integration.....(9 hours)

7.1 Antiderivatives

7.2 Substitution

7.3 Area and the Definite Integral

7.4 The Fundamental Theorem of Calculus

7.5 Integrals of Trigonometric Functions

7.6 The Area Between Two Curves and Applications