

Math 125

Calculus I

Fall, 2000

Syllabus

Links are to the homework assignments.

Chapter 1. Limits and Continuity

- 1.1 Rates of change and limits
- 1.2 Finding limits and one-sided limits
- 1.3 Limits involving infinity
- 1.4 Continuity
- 1.5 Tangent lines

Chapter 2. Derivatives

- 2.1 The derivative as a function
- 2.2 The derivative as a rate of change
- 2.3 Derivatives of products, quotients and negative powers
- 2.4 Derivatives of trigonometric functions
- 2.5 The chain rule
- 2.6 Implicit differentiation
- 2.7 Related rates

Chapter 3. Applications of Derivatives

- 3.1 Extreme values of functions
- 3.2 The mean value theorem and differential equations
- 3.3 The shape of a graph
- 3.4 Graphical solutions of autonomous differential equations
- 3.5 Modeling and optimization
- 3.6 Linearization and differentials
- 3.7 Newton's method

Chapter 4. Integration

- 4.1 Indefinite integrals, differential equations and modeling
- 4.2 Integral rules; integration by substitution
- 4.3 Estimating with finite sums
- 4.4 Riemann sums and definite integrals
- 4.5 The Mean Value and Fundamental Theorems
- 4.6 Substitution in definite integrals
- 4.7 Numerical integration

Chapter 5. Applications of Integrals

- 5.1 Volumes by slicing and rotation about an axis
- 5.2 Modeling volume using cylindrical shells
- 5.3 Lengths of plane curves
- 5.4 Springs, pumping and lifting
- 5.5 Fluid forces
- 5.6 Moments and centers of mass

The section on Preliminaries contains important and useful information which should be reviewed at the start of the semester and referred back to as needed during the semester.

[BACK](#)