MATH 150A **Calculus I** **Fall 2007**

Course Syllabus

Text: "Calculus", by James Stewart, 6th edition, Brooks/Cole Publishing

The following sections from the text will be covered:

Limits of functions and Continuity

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

Derivatives

3.1 Derivatives and Rates of Change

3.2 The Derivative as a Function

3.3 Differentiation Formulas

3.4 Derivatives of Trigonometric Functions

3.5 The Chain Rule

3.6 Implicit Differentiation

3.7 Rates of Change in the Natural and Social Sciences

3.8 Related Rates

3.9 Linear Approximations and Differentials

Applications of Differentiation

4.1 Maximum and Minimum Values

4.2 The Mean Value Theorem

4.3 How Derivatives Affect the Shape of a Graph

4.4 Limits at Infinity; Horizontal Asymptotes

4.5 Summary of Curve Sketching

4.7 Optimization Problems

4.8 Newton's Method

4.9 Antiderivatives

Integrals

5.1 Areas and Distances

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

Applications of Integration

6.1 Areas Between Curves

6.2 Volumes

6.3 Volumes by Cylindrical Shells

6.4 Work

6.5 Average Value of a Function