

Detailed MATH 2200 Syllabus

Modeled on MWF schedule

I. Prelude to calculus (2 weeks)

- 2.1 Tangent Lines and Slope Predictors
- 2.2 The Limit Concept - Day 1.
- 2.2 The Limit Concept - Day 2.
- 2.3 More About Limits - Day 1.
- 2.3 More About Limits - Day 2.
- 2.4 Concept of Continuity - Day 1.
- 2.4 Concept of Continuity - Day 2.

II The derivative and rules for differentiation (3 weeks)

- 3.1 The Derivative and Rates of Change - Day 1.
- 3.1 The Derivative and Rates of Change - Day 2.
- 3.1 The Derivative and Rates of Change - Day 3.
- 3.2 Basic Differentiation Rules - Day 1.
- 3.2 Basic Differentiation Rules - Day 2.
- 3.3 The Chain Rule - Day 1.
- 3.3 The Chain Rule - Day 2.
- 3.4 Derivatives of Algebraic Functions.

III. Application of the derivative; derivatives of transcendental functions. (3 weeks)

- 3.5 Maxima and Minima of Functions on Closed Intervals.
- 3.6 Applied Optimization Problems - Day 1.
- 3.6 Applied Optimization Problems - Day 2.
- 3.6 Applied Optimization Problems - Day 3.
- 3.7 Derivatives of Trigonometric Functions - Day 1.
- 3.7 Derivatives of Trigonometric Functions - Day 2.
- 3.8 Exponential and Logarithmic Functions.
- 3.9 Implicit Differentiation and Related Rates - Day 1.
- 3.9 Implicit Differentiation and Related Rates - Day 2.
- 3.9 Implicit Differentiation and Related Rates - Day 3.

IV. Mean Value Theorem and applications (2 weeks)

- 4.2 Increments, Differentials, and Linear Approximation.
- 4.3 Increasing and Decreasing Functions and the Mean Value Theorem - Day 1.
- 4.3 Increasing and Decreasing Functions and the Mean Value Theorem - Day 2.
- 4.4 The First Derivative Test and Applications - Day 1.
- 4.4 The First Derivative Test and Applications - Day 2.

4.4 The First Derivative Test and Applications - Day 3.

V. Curve sketching ($1\frac{1}{2}$ weeks)

4.5 Simple Curve Sketching.

4.6 Higher Derivatives and Concavity - Day 1.

4.6 Higher Derivatives and Concavity - Day 2.

VI. Anti-derivatives ($1\frac{1}{2}$ weeks)

5.2 Antiderivatives and Initial Value Problems - Day 1.

5.2 Antiderivatives and Initial Value Problems - Day 2.

5.3 Antiderivatives and Initial Value Problems - Day 3.