MATHEMATICS 1000 (Calculus I) — Fall 2024
Course Outline

Section 1: Limits and Continuity (approx. 3 weeks)

- 1.1: The Limit of a Function
- 1.2: Finite Limits (§2.2)
- 1.3: The Properties of Limits (§2.3)
- 1.4: Techniques for Evaluating Limits (§2.3)
- 1.5: Limits at Infinity (§2.6)
- 1.6: Continuity (§2.5)
- 1.7: Continuity on an Interval (§2.5)

Section 2: Differentiation (approx. 2 weeks)

- 2.1: Rates of Change (§2.1, 2.7)
- 2.2: The Limit Definition of the Derivative (§2.8)
- 2.3: Derivatives of Algebraic Functions (§3.1)
- 2.4: The Product and Quotient Rules (§3.2)

Section 3: Derivatives of Transcendental Functions (approx. 3 weeks)

- 3.1: Derivatives of Trigonometric and Exponential Functions (§3.1, 3.3)
- 3.2: The Chain Rule (§3.4)
- 3.3: Implicit Differentiation (§3.5)
- 3.4: Derivatives of Logarithmic Functions (§3.6)
- 3.5: Inverse Trigonometric Functions and Their Derivatives (§1.5, 3.6)
- 3.6: Hyperbolic Functions and Their Derivatives (§3.11)
- 3.7: Higher Derivatives (§2.8, 3.5)

Section 4: Applications of Differentiation (approx. 3 weeks)

- 4.1: Related Rates (§3.9)
- 4.2: Relative Extrema and Points of Inflection (§4.1, 4.3)
- 4.3: Curve Sketching (§4.5)
- 4.4: Absolute Extrema (§4.1, 4.2)
- 4.5: Optimisation Problems (§4.7)
- 4.6: L'Hôpital's Rule (§4.4)

Section numbers (§) are given for Stewart, Clegg & Watson, 9th edition.