

# MATHEMATICS 2000 (Calculus III) — Winter 2020

## Course Outline

### UNIT 1: INFINITE SEQUENCES AND SERIES

*Infinite Sequences (approx. 5 lectures)*

- 1.1: Sequences (§11.1)
- 1.2: Limits of Sequences (§11.1)

*Infinite Series of Constants (approx. 9 lectures)*

- 1.3: Series (§11.2)
- 1.4: The Integral Test (§11.3)
- 1.5: The Comparison Tests (§11.4)
- 1.6: Absolute and Conditional Convergence (§11.5, 11.6)
- 1.7: Testing Strategies (§11.7)

*Infinite Series of Functions (approx. 8 lectures)*

- 1.8: Power Series (§11.8)
- 1.9: Representing Functions as Power Series (§11.9)
- 1.10: Taylor and Maclaurin Series (§11.10)
- 1.11: Complex Numbers and Euler's Formula

### UNIT 2: MULTIVARIABLE CALCULUS

*Partial Differentiation (approx. 6 lectures)*

- 2.1: Multivariable Functions (§14.1)
- 2.2: Limits and Continuity (§14.2)
- 2.3: Partial Derivatives (§14.3)
- 2.4: The Chain Rule (§14.5)
- 2.5: Extreme Values (§14.7)

*Multiple Integration (approx. 6 lectures)*

- 2.6: Double Integrals over Rectangles and Iterated Integrals (§15.1)
- 2.7: Double Integrals over General Regions (§15.2)
- 2.8: Polar Coordinates (§10.3)
- 2.9: Double Integrals in Polar Coordinates (§15.3)

- Section numbers are given for Stewart 8th edition.
- Lectures on Mondays and Wednesdays will typically deal with Unit 1, and lectures on Fridays with Unit 2.