**Math 202**

**Vector Calculus**

**Book:** Calculus, Sixth Edition

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**Chapter 9: Parametric Equations and Polar Coordinates**:

9.1 Parametric Equations: Everything until Example 6.

9.2 Arc Length and Surface Area: Everything.

9.3 Polar Coordinates: Everything.

9.4 Integrals in Polar Coordinates: Everything except Example 5.

**Chapter 10: Vectors and Surfaces:**

10.1 Vectors in Two Dimensions: Everything except Example 7.

10.2 Vectors in Three Dimensions: Everything.

10.3 Dot Product: Everything except Example 6.

10.4 The Vector Product: Everything until first paragraph p.883.

10.5 Lines and planes: Everything except Example 15.

**Chapter 11: Vector-Valued Functions:**

11.1 Vector-Valued Functions and Space Curves: Everything except Example 6.

11.2 Limits, Derivatives and Integrals: Everything except Proof of Theorem 11.8.

11.3 Curvilinear Motion: Everything until Example 3.

11.4 Curvature: Everything except Example 8.

11.5 Tangential and Normal Components of Acceleration: Everything except part (b) of Examples 1 and 4.

**Chapter 13: Multiple Integrals:**

13.4 Surface Area: Everything except Example 3.

13.7 Cylindrical Coordinates: Theorem 13.29, Examples 1and2, Theorem 13.30 without proof, find the volume in Examples 3 and 4.

13.8 Spherical Coordinates: Theorem 13.32 without proof, find the volume in Examples 4 and 5, Example 6 not included.

**Chapter 14: Vector Calculus:**

14.1 Vector Fields: Definition 14.1, 14.3, 14.5, 14.6,14.7, Example 4 and 5.

14.2 Line Integrals: 14.8, Evaluation Theorem 14.9, Examples 1,2,4 and 5.

14.3 Independence of Path: Theorem 14.13 and 14.14, Example 1, Theorem 14.16, Example 3,4 and 5.

14.4 Green's Theorem: Everything.

14.5 Surface Integrals: Evaluation Theorem 14.23, Example 1, 2, 3, Flux Integral 14.24, Definition 14.25, Example 5

14.6 The Divergence Theorem: Everything until Example 2.

14.7 Stokes's Theorem: Stokes's Theorem 14.28, Example 1, Theorem 14.30 and 14.31, Example 6.