MATH 255 Vector Analysis

Hunter College

3.0 hours, 3.0 credits

Instructor: Office Hours: Contact Info:

Text: Vector Calculus, Jerrold E. Marsden, Anthony Tromba, 6th edition, W.H. Freeman and company.

Prerequisites: MATH 250.

Desired Learning Outcomes: The student will learn to:

Compute line integrals, surface integrals, volume integrals, and apply Green's Theorem, Stokes Theorem, Gauss' Theorem and the Divergence Theorem.

Homework/Exams/Grades: There will be regularly assigned homework, two midterm exams and one final exam. The exams will count for 80% of your course grade, the homework will count for 20%.

Topics: This is the fourth course in our calculus sequence. This course continues the study of multivariable calculus, and develops line integrals, surface integrals and volume integrals and develops the classic theorems of vector analysis.

Chapter 7 Integrals over Paths and Surfaces

- 7.1 The Path Integral
- 7.2 Line Integrals
- 7.3 Parameterized Surfaces
- 7.4 Area of a Surface
- 7.5 Integrals of Scalar Functions over Surfaces
- 7.6 Surface Integrals of Vector Fields
- 7.7 Applications to Differential Geometry, Physics, and Forms of Life

Chapter 8 The Integral Theorems of Vector Analysis

- 8.1 Green's Theorem
- 8.2 Stokes' Theorem
- 8.3 Conservative Fields
- 8.4 Gauss' Theorem
- 8.5 Differential Forms

Note: P/NC grading is not permitted for this course.

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Changes: Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.