Catalog Description:
Multivariable differential and integral calculus.

Prerequisites:
C- or better in 1152, 1172, 1534, 1544, 1181H, or 4181H; or credit for 153.xx, 154, 162.xx, or 162.01H.

Exclusions:
Not open to students with credit for any higher numbered math class, or for any quarter math class numbered 254 or higher.

Text:

Topics:

CHAPTER 12. Vectors and Vector-Valued Functions
   Section 1. Vectors in the Plane
   Section 2. Vectors in Three Dimensions
   Section 3. Dot Products
   Section 4. Cross Products
   Section 5. Lines and Curves in Space
   Section 6. Calculus of Vector-Valued Functions
   Section 7. Motion in Space
   Section 8. Length of Curves
   Section 9. Curvature and Normal Vectors

CHAPTER 13. Functions of Several Variables
   Section 1. Planes and Surfaces, and brief conic section review via pages 761 to 766 of Section 11.4
   Section 2. Graphs and Level Curves
   Section 3. Limits and Continuity
   Section 4. Partial Derivatives
   Section 5. The Chain Rule
   Section 6. Directional Derivatives and the Gradient
   Section 7. Tangent Planes and Linear Approximation
   Section 8. Maximum/Minimum Problems
   Section 9. Lagrange Multipliers
CHAPTER 14. Multiple Integration
    Section 1. Double Integrals over Rectangular Regions
    Section 2. Double Integrals over General Regions
    Section 3. Double Integrals in Polar Coordinates
    Section 4. Triple Integrals
    Section 5. Triple Integrals in Cylindrical and Spherical Coordinates
    Section 6. Integrals for Mass Calculations
    Section 7. Change of Variables in Multiple Integrals

CHAPTER 15. Vector Calculus
    Section 1. Vector Fields
    Section 2. Line Integrals
    Section 3. Conservative Vector Fields
    Section 4. Green’s Theorem
    Section 5. Divergence and Curl
    Section 6. Surface Integrals
    Section 7. Stokes’ Theorem
    Section 8. Divergence Theorem