

I. COURSE INFORMATION

- A. Mathematics 225 Calculus with Analytic Geometry III
- B. 3 credit hours
- C. Briggs, Cochran, Gillett and Schulz. *Calculus for Scientists and Engineers: Early Transcendentals*. 3rd ed. New Jersey: Pearson, 2018
- D. Prerequisites: MAT 125 Calculus with Analytic Geometry II with a C grade or above

II. COURSE DESCRIPTION

This course amplifies the study of multivariable calculus with infinite series and vectors. The course includes partial differentiation and multiple integration with applications.

III. LEARNING OUTCOMES

- A. Use of integrate and differentiate vector-valued functions
- B. Compute curvature and acceleration
- C. Graphing and finding equations of cylinders and quadric surfaces
- D. Graphing in cylindrical and spherical coordinates
- E. Compute partial derivatives
- F. Compute differentials in several variables
- G. Locate extrema in three dimensions
- H. Evaluate iterated integrals
- I. Apply iterated integrals to area, mass, volume, surface area, and center of mass
- J. Do iterated integrals in cylindrical and spherical coordinates

IV. MAJOR CONTENT AREAS

- A. Multiple integration
- B. Partial differentiation
- C. Vector calculus

V. ASSIGNMENTS (may include but are not limited to)

- A. Reading assignments
- B. Homework
- C. Quizzes and exams

VI. EVALUATION METHODS (may include but are not limited to)

- A. Assignments
- B. Quizzes
- C. Exams