

COURSE SYLLABUS (2 Page)

Course Number: MATH 2241
Course Name: Calculus III

Credits and Contact Hours: 3

Instructor: Staff

Textbook: Essential Calculus: Early Transcendentals, by James Stewart., 2nd Edition (2013).
Cengage Learning, ISBN: 9781133112280

Catalog Description: Functions of two or more variables, vectors in two and three dimensions, partial derivatives, optimization, double and triple integrals and their applications.

Most Recently Offered (Day): Spring 2016, Fall 2015, Summer 2015

Most Recently Offered (Evening): Course has not been offered in 3 years

Pre-Requisites/Co-Requisites: MATH 1242 with grade of C or above.

Course is: Required (R)

Goals: To develop student knowledge in calculus. Specifically, students will learn to deal with functions of two or more variables, vectors in two and three dimensions, partial derivatives, optimization issues, and double and triple integrals and their applications.

Student Outcomes Addressed:

- A. an ability to apply knowledge of mathematics, science, and engineering

Course Topics:

- Three-Dimensional coordinate systems
- Vectors
- The Dot Product
- The Cross Product
- Equations of Lines and Planes
- Cylinders and Quadratic Surfaces
- Vector Functions and Space Curves
- Arc Length and Curvature
- Motion in Space
- Functions of Several Variables
- Limits and Continuity
- Partial Derivatives
- Tangent Planes and Linear Approximations
- The Chain Rule
- Directional Derivatives and the Gradient Vector

- Maximum and Minimum Values
- Lagrange Multipliers
- Double Integrals over Rectangles
- Iterated Integrals
- The Notion of Triple Integrals
- Double Integrals over General Regions
- Double Integrals in Polar Coordinates
- Applications of Double Integrals