

MA 227 CALCULUS III

Course Description: This is the third of three courses in the basic calculus sequence. Topics include vector functions, functions of two or more variables, partial derivatives (including applications), quadratic surfaces, multiple integration, and vector calculus including Green's Theorem, Curl and Divergence, surface integrals, and Stoke's Theorem.

Credit Hours. 4

Course Objectives:

The student shall demonstrate knowledge of:

1. Various problem-solving strategies including, but not limited to, reading the problem, interpreting the problem, selecting an appropriate mathematical model, solving the problem and reflecting on the reasonableness of the answer.
2. Resources available to enhance personal knowledge of mathematics.

The student shall demonstrate ability to:

3. Use estimation and approximation skills, and assess the reasonableness of solutions to problems.
4. Explain the role, nature, and limitations of current and emerging technology.
5. Use current technology in problem solving and in exploring mathematical concepts.
6. Present and interpret data in graphical form.
7. Select or create appropriate mathematical models to solve problems in mathematics and in other disciplines.

Course Content:

- I. Three-Dimensional Space; Vectors
- II. Vector-Valued Functions
- III. Partial Derivatives
- IV. Multiple Integrals
- V. Topics in Vector Calculus

Course Requirements: Regular attendance. IT-85 or IT-86 Graphing Calculator.

Course Evaluation: There will be 4 or 5 major tests and a final examination. In addition, there will be several *unannounced* short quizzes.

ACCOMMODATION STATEMENT:

In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, the University offers reasonable accommodations to students with eligible documented learning, physical and/or psychological disabilities. Under Title II of the Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973, a disability is defined as a physical or mental impairment that substantially limits one or more major life activities as compared to an average person in the population. It is the responsibility of the student to contact *Developmental Services* prior to the beginning of the semester to initiate the accommodation process and to notify instructors within the first three class meetings to develop an accommodation plan. Appropriate, reasonable accommodations will be made to allow each student to meet course requirements, but no fundamental or substantial alteration of academic standards will be made. Students needing assistance should contact *Developmental Services*.

UNIVERSITY OF NORTH ALABAMA