MAT 121 - Calculus with Analytic Geometry I

Course Credit: 3 semester hours

Course Description:A brief review of functions including transcendental functions and a study of single-variable differential calculus. Major topics covered include limits, continuity, the derivative and its applications.

Rationale: This course is intended for mathematics, science, and engineering students. It is the first course of what could be a four-semester Calculus sequence.

Prerequisites: MAT 113 or MAT 119 or ACT MAT subscore of 25 or better

Learning Objectives: Upon successful completion of this course, the student will be able to use analytic geometry, calculate the limit of a function, determine whether a function is continuous, calculate the derivative of a function, use derivatives to analyze a function, use techniques of calculus to solve related rates and optimization problems.

Instructional Procedures/Techniques:
The method of instruction may include lecture, group problem solving, individual problem solving, demonstrations, computer lab assignments, quizzes and examinations.

Outline of Topics:
- Functions and their graphs
- Limits and their properties
- Differentiation rules
- Related Rates
- Extrema
- First Derivative Test
- Concavity
- Curve Sketching using techniques of calculus
- Optimization

Materials Required: Calculus: Early Transcendental Functions by Ron Larson and Bruce Edwards, 8th ed.

Attendance and Make-up tests: Any student whose absences, whether excused or unexcused, accumulate to 12 in semester classes meeting 3 times per week or 8 in semester classes meeting 2 times per week or 4 in semester classes meeting once a week automatically receives a grade of F in the course. The responsibility for missed work rests entirely with the student.

Academic Integrity: Students are expected to do their own work. Refer to the following website: www.mc.edu/publications/policies/219.html.