COURSE NUMBER: MAT311

COURSE TITLE: Calculus 2

Faculty Name:

Contact Information:

Pre-Requisite: MAT310

Text/Software:

Credits: 3

40 Hours of Structured Learning Activities

COURSE DESCRIPTION: After a review of limits and derivatives, this course focuses on students’ understanding and application of antiderivatives, the definite integral, the Fundamental Theorem of Calculus, integration techniques, applications of the definite integral and improper integrals. An overview of multivariable calculus includes partial derivatives, minima and maxima, and double integrals. The course concludes with a discussion of Taylor series and L’Hospital’s rule. Students are required to explain their reasoning graphically, numerically, analytically, and verbally.

At the conclusion of this course students will be asked to evaluate the course based on the following objectives:

- Gain factual knowledge (terminology, classifications, methods, trends).
- Learn fundamental principles, generalizations or theories.
- Learn to apply course material (to improve thinking, problem solving and decisions).
COURSE GOALS

GOAL A: Integration

Learning Objectives: The student will:
A-1 Demonstrate an understanding of antiderivatives and their relationship to derivatives.
A-2 Calculate anti-derivatives and indefinite integrals using basic techniques, such as substitution.
A-3 Evaluate definite integrals using selected integration techniques.
A-4 Apply the definite integral to compute area, volume and average value.
A-5 Apply the Fundamental Theorem of Calculus.
A-6 Use the technique of integration by parts.
A-7 Compute and apply improper integrals.

GOAL B: Multivariate Calculus

Learning Objectives: The student will:
B-1 Demonstrate an understanding of functions of several variables and partial derivatives.
B-2 Apply partial derivatives to maxima/minima and total differentials.
B-3 Evaluate double integrals and apply them to area and volume applications.
B-4 Integrate using substitution.

GOAL C: Sequences and Series

Learning Objectives: The student will:
C-1 Determine the convergence or divergence of a series.
C-2 Demonstrate an understanding of Taylor and Maclaurin series.
C-2 Demonstrate an understanding of L’Hospital’s Rule.

EVALUATION PROCEDURE AND GRADING POLICY:

LATE ASSIGNMENT POLICY:

CAS CLASSROOM STANDARDS: See Blackboard “Syllabus” area

COURSE SCHEDULE (all assignments/exams and due dates):