

- I. CATALOG DESCRIPTION: (Department, Course Number, Course Title, Catalog Description, Prerequisite, Corequisite, Advisory Skills)
- A. Mathematics; Math 285; Honors in Mathematics.
 - B. Lecture: 2 hours per week, and Laboratory 2 hours per week = 3 Units
 - C. An Introduction to algebraic concepts and functional properties necessary for understanding limits and application of those limits to their derivative functions in Calculus.
 - D. Prerequisite: Math 095 or Math 102 with a grade of B or better or eligibility for Math 102 as determined through the SBVC assessment process.
- II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One
- III. EXPECTED OUTCOMES FOR STUDENTS
- Upon successful completion of the course, the student should be able to:**
- A. Interpret and compute limits graphically, numerically and algebraically.
 - B. Determine continuity of functions.
 - C. Differentiate algebraic functions graphically, numerically and algebraically, by finding the limit of the Difference Quotient.
 - D. Apply differentiation techniques in optimization, related rates, curve sketching, extrema, concavity.
- IV. CONTENT
- A. brief review of functions which may include
 - 1. Linear models; rates of change
 - 2. Graphs of function; symmetry, domain, range.
 - 3. Operations with functions
 - 4. Functions and their inverses.
 - B. Limits and their properties
 - 1. Evaluating limits graphically, numerically and algebraically
 - 2. Two-sided, one-sided and infinite limits.
 - 3. Continuity
 - C. Differentiation
 - 1. Basic Differentiation rules
- V. METHODS OF INSTRUCTION
- A. Lecture
 - B. Laboratory
 - C. Discussion
 - D. Collaborative Methods
- VI. TYPICAL ASSIGNMENTS
- A. Daily readings and/or problem assignments will reinforce and extend classroom presentation
 - B. Written assignments will include solutions of various problems illustrative of the appropriate mathematical concepts and processes
 - C. Term subject to require usage of calculus techniques

VII. EVALUATIONS

- A. One Midterm Exam
- B. Quizzes, textbook and/or supplementary assignments
- C. Term Project
- D. Comprehensive final examination

VIII. TYPICAL TEXT

- A. Larson/Hostetlers/Edwards, Calculus, Sixth Edition
- B. Hornsby/Lial College Algebra (Math 151 Textbook)

IX. OTHER SUPPLIES REQUIRED OF STUDENTS

- A. Graphing Calculator-Texas Instruments 85 or equivalent model

**Content Review Form
PREREQUISITE COURSE**

Target Course: **Math 285**

Prerequisite Course: **Math 095 or Math 102**

Instructions:

1. List exit competencies (skills) from prerequisite course. These skills are listed in the “Student Outcomes” section of the course outline (“upon completion of the course, the student should be able to...”)
2. Indicate which of the listed exit competencies (skills) are necessary entry skills needed for success in the target course. Mark with an “X” each needed skill.
3. Indicate the degree of importance of each needed entry skill for success, using the following rating scale:
 1=Critical 2=Very helpful 3=Desirable

Exit skills in prerequisite courses Math 095 and Math 102	Entry skills needed for Success in Target Course (Mark with an X if needed)	Degree of Importance (Rate 1-3)
1. Work with Functions graphically, Numerically and algebraically	X	1
2. Construct graphs of polynomial, Rational, exponential and logarithmic functions.	X	2
3. Apply the properties of logarithms and exponential functions.	X	1
4. Solve Systems of equations and inequalities graphically, numerically and algebraically.	X	2
5. Recognize, evaluate and graph the conic sections	X	3
6. Recognize, analyze and apply arithmetic and geometric sequences and series.	X	2
7. Apply the Binomial expansion theorem.	X	2
8. Analyze an application problem and Formulate and express their findings in an appropriate mathematical Equation	X	1

