Math 155 Calculus I

Credit Hours: 4
Scheduled hours per week
Lecture: 5
Lab: 0
Other: 0

Catalog Course Description: Limits, continuity, derivatives and applications, properties of the definite integral, and applications.

Pre-requisites: C or better in Math 126 and Math 128, or placement test.

Co-requisites: None

Course Learning Outcomes:
A. Students will demonstrate ability to work with limits.
B. Students will demonstrate knowledge of continuity.
C. Students will demonstrate knowledge of differentiation of algebraic and trigonometric functions.
D. Students will demonstrate knowledge of the properties of the definite integral.
E. Students will demonstrate ability to work with applications of derivatives and the definite integral.

Topics to be studied:
Limits
Limit laws
Definition of limit
Definition of derivative
Differentiation formulas
Derivatives of trig functions
Chain rule
Implicit differentiation
Related rates
Linear approximations
Differentials
Extrema
Mean value theorem
Curve sketching
Newton's method
Optimization problems
Antiderivatives
Definite integrals
Fundamental theorem of calculus
Areas between curves
Volumes
Work
Average Value of a function Continuity

Relationship of Course to Program or Discipline Learning Outcomes:

(What program outcomes are being met by this course?
For general education courses, a listing of the general education competencies that are met.)

Relationship of Course to Mathematics (MATH) Student Learning Outcomes:	
Demonstrate understanding of the language of mathematics, by their use of symbols, definitions, word phrases, and representations.	x
Display proficiency in mathematical computations.	x
Implement mathematical techniques to solve applied problems.	x
Employ appropriate technology to demonstrate knowledge of mathematical concepts.	x
Exhibit mastery of core course competencies.	x
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Relationship of Course to General Education Learning Outcomes:	
Composition and Rhetoric Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.	
Science & Technology Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.	
Mathematics & Quantitative Skills Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.	x
Society, Diversity, & Connections Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.	
Human Inquiry & the Past Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.	
The Arts & Creativity Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.	
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Special requirements of the course: None

Additional information: None

Prepared by: Thomas Riddle

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