A. Course Description

Credits: 4

Prerequisites: MATH 120 Precalculus or placement on the mathematics assessment test offered by Placement Assessment Office.

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week :

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

Since its beginnings, calculus has demonstrated itself to be one of humankind's greatest intellectual achievements. This versatile subject has proven useful in solving problems ranging from physics and astronomy to biology and social science. Through a conceptual and theoretical framework this course covers topics in differential calculus including limits, derivatives, derivatives of transcendental functions, applications of differentiation, L'Hopital's rule, implicit differentiation, and related rates.


C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Successfully apply the methods and concepts of differential calculus to mathematically model and solve optimization problems of current interest in the sciences, economics, and engineering.
2. Understand the concepts and methods of differential calculus.
3. Understand, and be able to calculate, derivatives of polynomial, rational, trigonometric, exponential and logarithmic functions.
4. Understand, and be able to utilize, differentiation rules, including the product, quotient, and Chain Rule.

E. Learning Outcomes (MN Transfer Curriculum)

Goal 04 - Mathematical/Logical Reasoning

1. Apply higher-order problem-solving and/or modeling strategies.
2. Clearly express mathematical/logical ideas in writing.
3. Illustrate historical and contemporary applications of mathematical/logical systems.
4. Explain what constitutes a valid mathematical/logical argument(proof).

G. Special Information

Prerequisite: C- or better within past 3 years in MATH 120 Precalculus or permission of the Math and Statistics Department chair. Note: Students whose prerequisites are not identified by the system would contact the Math and Statistics department for an override at MATH@metrostate.edu. First day attendance required except by instructor permission.